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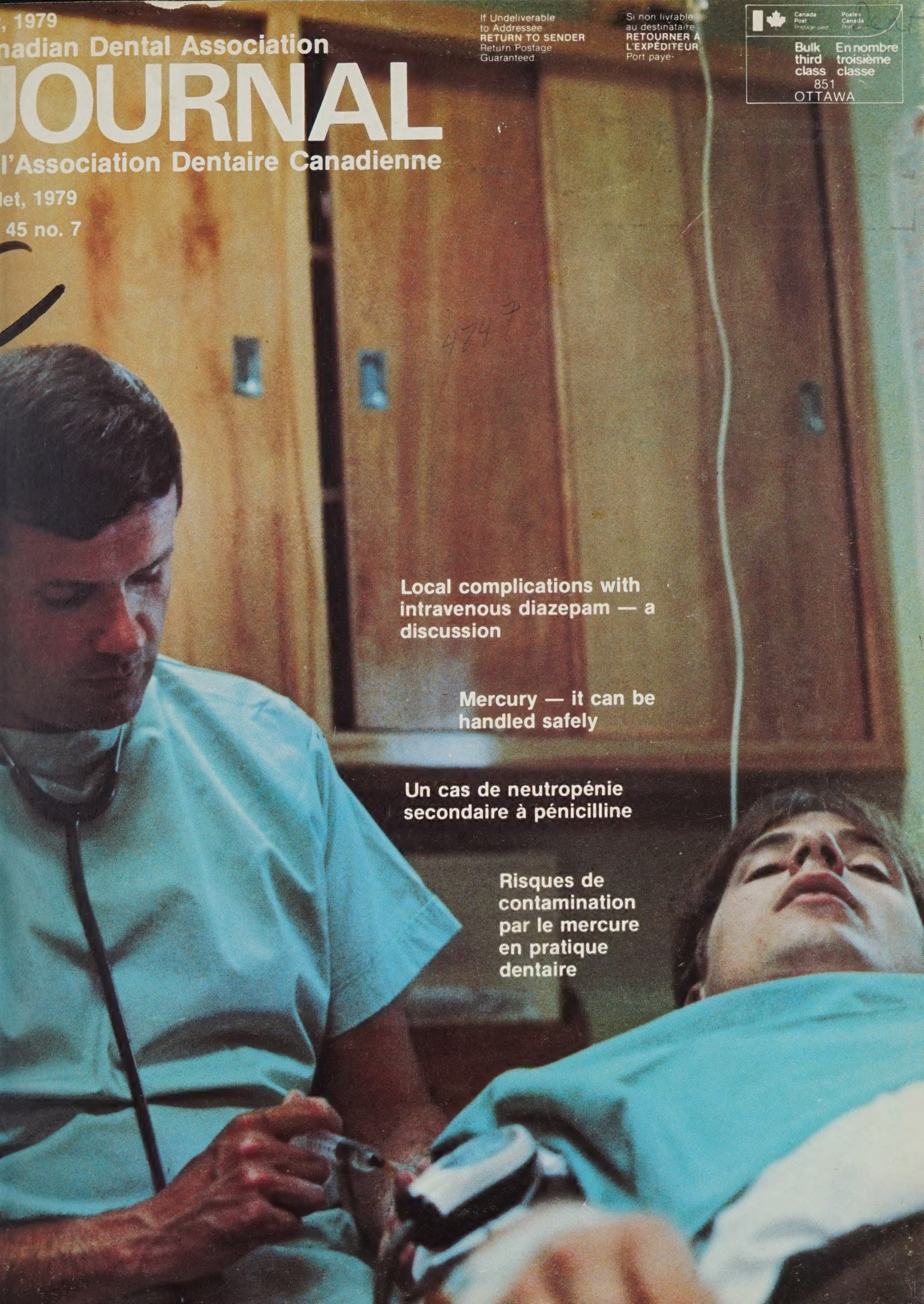

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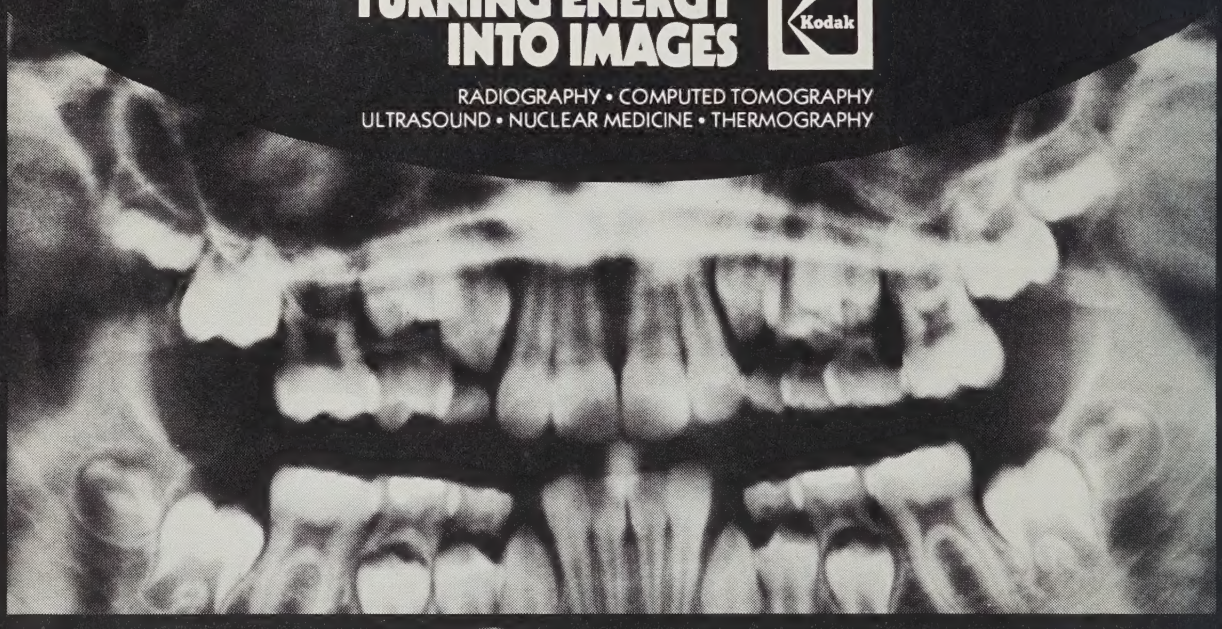

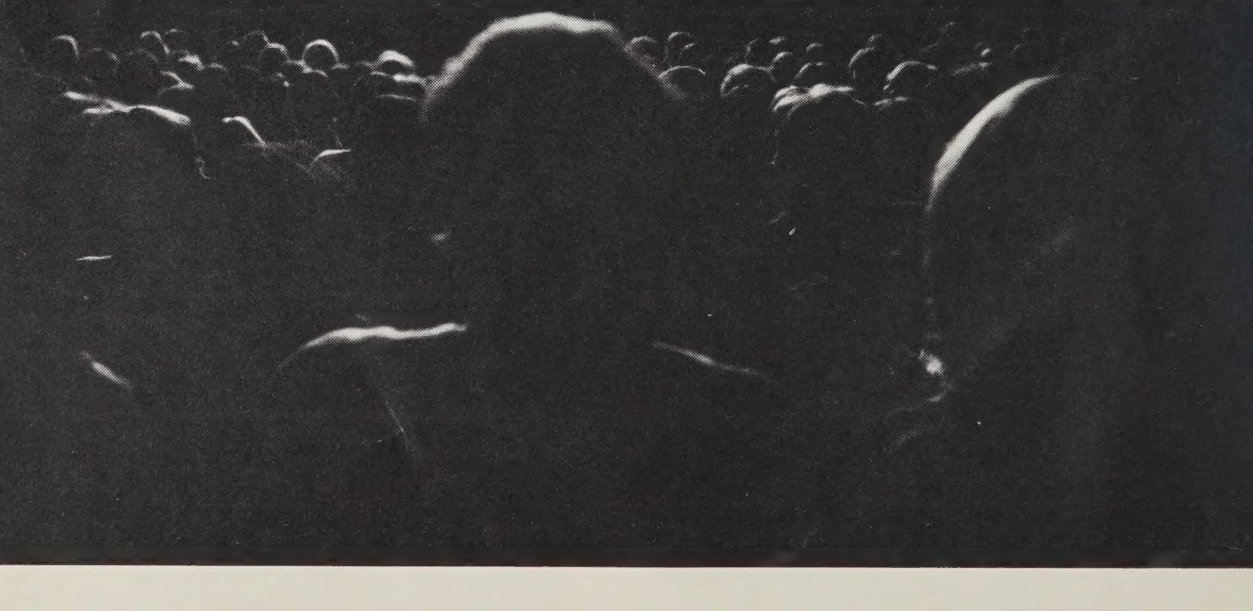

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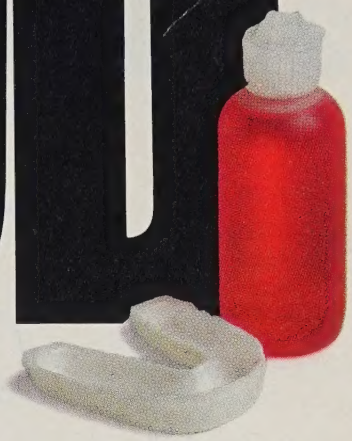

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†Beiswanger, B.B., *et al.*: J. Dent. Child. *45*:137, 1978.

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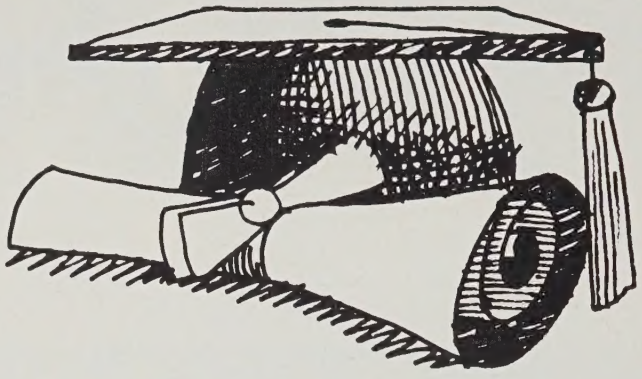

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COVER

Dr. Harry Amos, National Defence Medical Centre, Ottawa, sedates a patient. "Local Complications with Intravenous Diazepam" are discussed by Dr. David Donaldson and Dr. Gary Gibson. See Page 337.

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"Les radiographies dentaires montrent des problèmes cachés" — on peut se procurer des exemplaires de cette brochure auprès de l'Association Dentaire Canadienne. Voir page 324.

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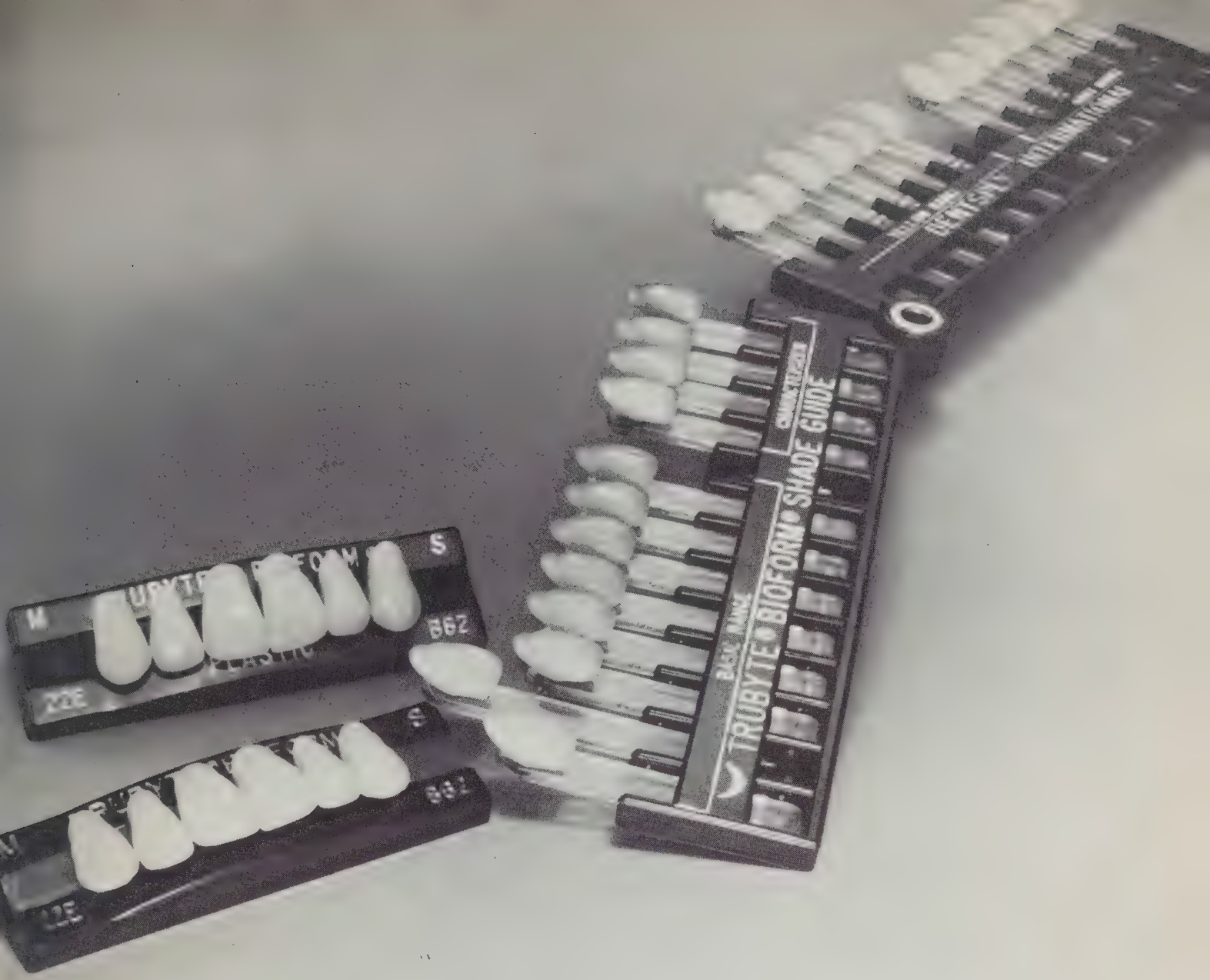

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LETTERS

Dentist claims shortcomings of work in northe

In the October 1978 and the February 1979 issues of the Journal of the Canadian Dental Association, positions were advertised for dental officers in the Public Service of Canada in Inuvik and Rankin Inlet and Frobisher Bay and Rankin Inlet respectively. It was to the former that I responded last November and subsequently began working in Inuvik January of this year. What ensued in the following three and one half months might be of interest to other dentists considering replying to these advertisements in the future.

Within two weeks of my arrival in Inuvik, I was made aware that contrary to the advertisement stating, "opportunities exist for dentists . . . to practice all phases of dentistry with modern portable equipment", severe restrictions were placed on the number of phases of dentistry that could be practiced. When I enquired about the date that these restrictions were formulated, I discovered they had been established as policy long before the date the advertisement appeared in the Journal. Also, no indication of these restrictions was given in my interview in Edmonton even though questions about the type of dentistry practiced in the North had been advanced.

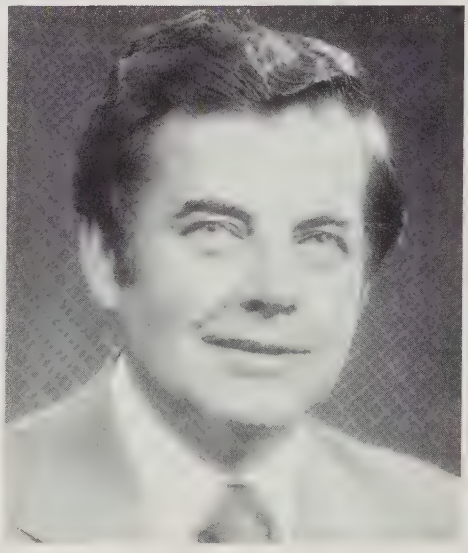
The dental clinic in Inuvik (the largest and furthest north of the three communities mentioned above) is located in the Inuvik General Hospital. During my first week in the clinic, I pointed out to my supervisor that there was no emergency kit nor emergency drugs in the clinic (I later discovered that this was a long-standing situation prior to my arrival). I was informed an emergency kit was on order — none arrived in my three and one half month stay there. Fortunately, the pharmacy was able to provide me with an assortment of emergency drugs which together with my own stethoscope and sphygmomanometer formed an emergency kit of sorts.

During my interview I was told equipment was available to provide nitrous oxide sedation. But, the tubing to the mask was split halfway across and when I remarked about that in Inuvik, one of the other dentists said that situation had existed for some time, that he had complained about it and that nothing had been done. The equipment was still in the same state of disrepair when I left Inuvik in mid-April.

During my third week in Inuvik I asked if the walls in the dental X-ray room were lead lined. The reply was in the negative but I was told that the room had been examined prior to my arrival and had met federal safety standards. Nonetheless, I attached paper clips to unexposed X-ray films and attached these to the outside walls, placing the X-ray tube in the position it would be used for a patient and shooting at the same settings (15mA, 82kV, 1/5 sec) used for patients. I observed images of the paper clip develop after as few as four exposures. Consequently, I informed the supervisor that upon returning from a settlement in two weeks time, if neither lead lining in the walls nor lead shielding were provided, I would refuse to take any further dental X-rays. What ensued was a protracted series of meetings and written exchanges. At one point, we were informed that the minimal cost of lead shielding would be $900.00 (humbug). In another meeting we were reminded we were acting like private practitioners and that we could forget all that (imagine how that was received). Eventually this culminated in my receiving from Edmonton a letter informing me that I was being rejected on probation and that my services would cease April 13, 1979.

And now for the crunch. As part of the job offer, one is given assistance with relocating expenses if one remains for one year; but, "if you are unable to remain at your

Mayor Steen dies



Robert Steen, mayor of Winnipeg, died in May after a lengthy illness. Mr. Steen was the son of Dr. Manley Steen, a Winnipeg dentist.

Born and raised in Manitoba's capital city, Mr. Steen took office as mayor in 1977. He had served on City Council prior to that. Among other community affiliations, Mr. Steen had served on the Board of Governors with the Winnipeg Art Gallery.

He is survived by his wife Irene and two children, Garnet and Graham.

Mr. Steen was the mayor of the city at the time of the Canadian Dental Association National Convention in Winnipeg. A donation in his name is being made by the Canadian Dental Association to the Canadian Fund for Dental Education.

nada must be carefully considered by applicants

employment area for one year, you will be expected to pay your outbound expenses, in full, plus a portion of your inbound expenses." Consequently I received a request for a certified cheque for $1,564.50 with an additional statement that pay cheques would be withheld if I did not comply with the request. I ignored the request and my pay cheques for a month's work were withheld and the amount deducted.

There is one other statement in the original job description I would like to comment upon, namely, "a keen interest in northern dentistry is required." That would seem an altogether moot point. While in the outlying settlements, one is generally confronted with a mass of dental decay, denture needs and emergencies. It is expected that one will put in extra time there and one receives repayment in the form of two days compensatory leave per month. In actual fact I worked far in excess of two days per month and well in excess of what it would have cost to provide lead shielding. One can not help but be sceptical about the priorities of the hospital administration and the regional office in Edmonton. On one of my two-week long visits to a remote settlement, I phoned the hospital to have a cemiclave sent to us on the next scheduled airplane to replace the malfunctioning one we arrived with. Although there were two in the dental clinic in Inuvik, none was sent to us. It should be pointed out that instrument sterilization in the North is not to be taken lightly for communicable diseases are a real entity there.

In spite of all this, there were enjoyable aspects of the north. Life in the settlements in particular is still very different from the south. Attempts by the territories to gain provincial status, landclaim settlement discussions and the climate and geographic peculiarities of the north are all worth witnessing first hand. I would not advise anyone interested in practicing dentistry in the north not to go, however, I would advise a dentist to go only on a locum basis to determine if the conditions and restrictions described above are acceptable — if not, it is much easier to leave.

Were anyone to apply for one of these positions in the future, I hope the above points are kept in mind for the interview. Also, ask about staff turnover that occurs not just in the dental clinic but throughout the hospital.

If anyone is seriously considering applying for one of these positions I would be glad to discuss any of the above and provide other information about what may be expected in the north in general and from the Public Service there.

William Ring, D.D.S.
Swift Current,
Saskatchewan.

The Journal of the Canadian Dental Association is pleased to make this space available for "Letters to the Editor". All letters must be signed and the editor reserves the right to edit communications according to space requirements.

Le Journal de l'Association Dentaire Canadienne est heureux d'offrir cet espace aux lecteurs désireux d'envoyer des "Lettres à la rédaction". Toutes les lettres doivent être signées et la rédactrice en chef se réserve le droit de les raccourcir si le manque d'espace l'impose.

Who could disagree with Dr. Zarb?

Kindly mail one issue of the May, 1979 Journal. I read professor Zarb's editorial and paper on implantology while waiting in my dentist's office.

I am one of the veterinary surgeons involved in the animal research project presently being conducted on the TCP-Bio-Implants by two professors of the Dental Faculty at the University of Manitoba.

This is the first time that TCP-Implants are being tested in North America.

Professor Zarb wrote: "Successful replacement of lost teeth by implanted prostheses would advance dental treatment significantly." Who dares disagree with him?!

Your May, 1979 Journal will have an honorable place in my library.

Dr. G. Schwesinger
General V.M.
consultant,
Portage la Prairie,
Manitoba.

CORRECTIONS TO ARTICLE

In the May issue of the Journal some typographical errors were made in the article by Dr. George Zarb, Alloplastic Implants in Prosthodontics. Corrected cutlines appear complete below. Other corrections include: change 'page' to 'paper' (last word, eighth line from the bottom, first column, first page; change 'hose' to 'host' (seventh line from top, first column, second page). Dr. Zarb's article is available in reprint form.

Fig. 1 A. Pin screw; B. Subperiosteal; C. Endosseous implant designs. All three types demonstrate bone changes which underscore the biomechanical incompatibility of this type of metallic trans-epithelial implant method.

Fig. 3. A. The maxillary implant had also to be removed, and demonstrates the remarkable liberty taken by this patient's dentist in using a combined subperiosteal and endosseous design, as shown in B. C. The removed implants were placed on a dry skull to simulate their relative position *in vivo*. The patients in these illustrations were referred to the Prosthodontic Department, University of Toronto, and to the Mount Sinai Hospital Dental Department, for "re-treatment."

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Canadian Dental Association *T.M.

CANADIAN DENTAL ASSOCIATION RECOGNIZED

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The history of a Status Report

A full Status Report from the Council for Dental Materials and Devices on the "Hazards of Mercury Contamination in Dental Practice" appears in this issue of the Journal (see page 320). The history of the Report goes back to late 1976 when Dr. A.B. Morrison, assistant deputy minister, Health Protection Branch, Health and Welfare Canada, wrote to the then CDA president, Dr. Michael Cripton, expressing concern "about the possible health implications of the current composition, properties and use of dental amalgams."

Dr. Morrison specifically asked if the dental profession was satisfied amalgams do not constitute a significant health hazard. He also questioned whether selective usage of non-amalgam technics would result in gross loss in clinical performance and, enquired about control of amalgam composition.

Dr. Morrison indicated that up to 20 tons of mercury per year are used for dental amalgams in Canada and wanted to know what health hazards its use presented.

He seemed acutely concerned about the possibility of mercury on operatory floors or being disposed of down drains.

Dr. Morrison's letter was referred to the Council for Dental Materials and Devices and Dr. Cripton's reply was sent after the Council's consultation in September, 1977.

The following month, CDA received a letter from Dr. Morrison suggesting "concentrated" cooperation between CDA and the government's Health Protection Branch would be appropriate.

The series of correspondence started the Council for Dental Materials and Devices thinking — members should have some guidelines on how to use mercury safely. The present report is the result.

Since last winter, there has been a new development in the debate on the use of mercury in dental offices. The province of Ontario has passed regulations on hazardous materials — mercury is included. Many of the regulations are designed for heavy industrial areas and are both inappropriate and unnecessary in the controlled environment of a dental office.

It is recognized that it is the dentist's responsibility to protect patients and employees. Mercury contamination in the operatory can be avoided — if relatively simple and basic procedures are maintained.

Dr. Ralph Barolet is chairman of the Council for Dental Materials and Devices of the Canadian Dental Association.

ÉDITORIAL

L'utilisation du mercure dans le domaine dentaire

Un rapport complet du Conseil des matériaux et appareils dentaires sur les dangers de la contamination par le mercure en dentisterie ("Risques de Contamination par le mercure en pratique dentaire") figure dans le présent numéro du Journal (voir à la page 326). Son origine remonte à la fin de 1976, alors que le DR A.B. Morrison, sous-ministre adjoint de la Direction de la protection de la Santé, Santé et Bien-être Canada, envoya au Dr Michael Cripton, alors président de l'ADC, une lettre exprimant ses inquiétudes quant aux conséquences possibles des amalgames dentaires sur la santé, en raison de leur composition, de leurs propriétés et de leurs usages.

Le Dr Morrison demandait plus précisément si la profession dentaire était convaincue que les amalgames alors en usage ne posaient aucun risque appréciable pour la santé. Il se demandait également si l'utilisation sélective de techniques ne recourant pas aux amalgames entraînerait des inconvénients cliniques excessifs; enfin, il désirait connaître les modes de contrôle de la composition des amalgames.

Le Dr Morrison faisait aussi remarquer qu'on utilisait à ce moment jusqu'à 20 tonnes de mercure par année pour la composition d'amalgames dentaires au Canada et exprimait le désir d'être mis au courant des risques possibles de cette pratique pour la santé.

Il semblait particulièrement inquiet que du mercure puisse souiller le plancher des cliniques dentaires ou qu'on en jette les restes dans les canalisations.

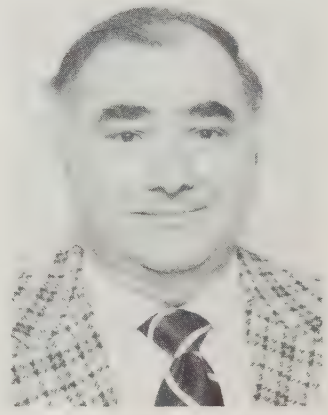
C'est le Conseil des matériaux et appareils dentaires qui se chargea ensuite de recueillir la réponse que le Dr Cripton envoya à la suite d'une réunion du Conseil, en septembre 1977.

Le mois suivant, l'ADC recevait une autre lettre du Dr Morrison, demandant cette fois une collaboration "massive" entre l'ADC et la Direction de la protection de la santé. Selon lui, cette mesure s'imposait.

Cet échange de correspondance fit naître, au sein du Conseil des matériaux et appareils dentaires, un courant de réflexion; il serait vraiment souhaitable que les membres de l'Association puissent se guider sur certaines lignes de conduite quant à l'utilisation du mercure en toute sécurité. C'est ainsi que vit le jour le rapport du Conseil à ce sujet.

Depuis l'hiver dernier, un nouvel événement est intervenu dans le débat sur l'utilisation du mercure dans les bureaux de dentiste. En effet, le Gouvernement ontarien a promulgué des règlements sur les substances dangereuses, dont le mercure. Ces règlements visent, en grande partie, les secteurs fortement industrialisés et ne s'imposent pas, ni ne s'appliquent, pour le milieu contrôlé d'un bureau de dentiste.

Le Conseil reconnaît que c'est au dentiste qu'il incombe de protéger la santé de ses patients et de ses employés. La contamination par le mercure dans les salles d'opérations dentaires peut être évitée, pourvu qu'on suive certaines précautions simples et fondamentales.



Le Dr Ralph Barolet est directeur du Conseil sur les matériaux et appareils de l'Association Dentaire Canadienne.

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Occasion unique pour des dentistes dynamiques de participer à un programme de prévention dentaire adapté à la pratique de groupe et à l'utilisation d'un personnel auxiliaire qualifié.

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Un contrat de quatre ans est offert. Prime de départ substantielle à la fin de l'engagement.

Informez-vous sur ce Programme d'engagement direct dans le Service dentaire des Forces canadiennes.

Contactez votre Centre de recrutement local (pages jaunes sous "Recrutement") ou bien téléphonez à frais virés au LCol R.A. Fortier (613) 992-6276.

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Established practice, modern equipment, immediate income, no expenses, interesting fringe benefits package, career and post-graduate training opportunities.

Salary: $26,700 for new graduates, up to $32,220 for experienced dentists.

Four-year contract offered. Generous bonus on completion of engagement.

Enquire about the Direct Entry Officer Plan for the Canadian Forces Dental Services.

Contact your local Recruiting Centre (in Yellow Pages under "Recruiting") or phone collect LCol R.A. Fortier (613) 992-6276.

LES FORCES ARMÉES CANADIENNES

THE CANADIAN ARMED FORCES

Status report from the Council for Dental Materials and Devices

The hazards of mercury contamination in a dental practice

Mercury is handled in most dental operatories during the preparation of silver amalgam, the most popular and widely used restorative material. In recent years, mercury has been increasingly recognized as a hazardous element. Newspapers are constantly reporting contamination of rivers and streams by mercury. Dental patients are aware that the dentist uses mercury in preparing his filling materials and they are beginning to question whether or not this is a safe practice. It thus becomes important for the dentist to be aware of the hazards of mercury so that he can take protective measures and can explain to his patients that his procedures are perfectly safe.

To start with, an important difference exists between the ecological problem of river contamination by mercury and the accidental contamination of a dental operatory by spilled or carelessly handled mercury. Elemental mercury in nature is converted by bacterial action to methyl and dimethyl mercury, two toxic materials that have a direct and adverse effect on the central nervous system in humans. Metallic mercury, on the other hand, while being hazardous, is not as dangerous as methyl mercury and can be handled quite safely if proper precautions are taken. The primary concern of the dentist must be the accidental absorption of metallic mercury by his patients and his auxiliary personnel.

Exposure to mercury by the dental patient comes from two sources; the mercury that is present in his amalgam fillings and accidental exposure to mercury during the dental operations. It has been well determined[1-2] that mercury bound up in dental amalgam is inoffensive. Generally, mercury reacts with silver, copper and tin present in the dental alloy to form chemical compounds. These compounds have properties that are quite different from the properties of their components and are quite inert. A comparison can be made with a common compound — table salt — which is quite inoffensive and yet both of its components (sodium and chlorine) can be hazardous. Tests[3] have shown that even after 10 years in clinical service, no significant differences exist in the mercury content of dental amalgams, indicating that it is not leached out or absorbed by the patient.

The main risk to the patient occurs during the placement or the removal of amalgam fillings. Patients can breath amalgam dust during dry grinding operations. Particles of freshly-mixed amalgam can be accidentally ingested during placement operations. But these exposures are relatively slight and of short duration. Accidental absorption is readily excreted and no cases of patient intoxication have been reported from these sources. The dentist can easily protect his patient from accidental exposures to mercury by using routinely, for instance, a rubber dam during these procedures.

Higher risks from mercury contamination are taken by the dentist and his auxiliary personnel. Direct absorption of mercury can take place through the skin or by ingestion. Cases of hypersensitivity have been reported. Probably the main cause of mercury absorption however is by inhalation of mercury vapours. Most people do not realize that mercury is a volatile material. At room temperature, the vapour pressure of mercury[4] is 20 mg/m^3 and this pressure increases to 40 mg/m^3 as the temperature increases by 10°C.

The safe level of mercury in the atmosphere, as established by the American Conference of Governmental Hygienists, is 0.05 mg/m^3 so a distinct hazard can exist if mercury is exposed to ambient air for long periods of time because of spills or other accidental mishaps. In most dental offices, the concentration of mercury in ambient air is quite low and under the safe level. However, in five percent of dental offices[5], mercury levels in the atmosphere are above the safe limits.

At the present time, some provinces are considering legislation to regulate the exposure of employees to certain substances. Mercury is considered one of these substances that can pose a health hazard if the exposure is sufficiently great. If the dental profession can show that it is taking the proper precautions in handling mercury then it is expected it will be excluded from government regulations which are mainly created for industrial situations.

The dentist must know how to handle mercury so that accidental spills will be eliminated and atmospheric levels will be kept to safe limits. Some points to remember[6] are listed:

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6 **Guide to Dental Materials and Devices. 8th edition, Chicago, American Dental Association, 1976.**

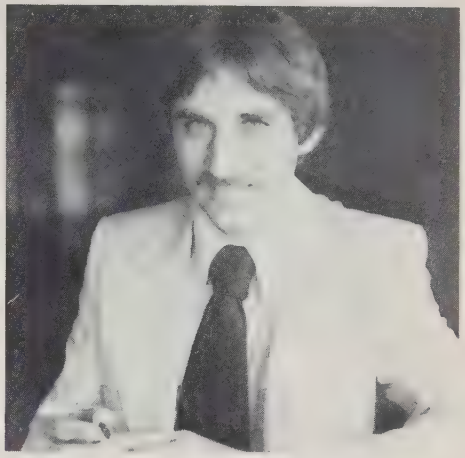
Dr Ralph Y. Barolet is chairman of the Council for Dental Materials and Devices of the Canadian Dental Association.

Mercury checklist

- mercury should be stored in sealed and unbreakable bottles in a cool place;
- all mercury spills should be picked up as soon as possible;
- all operations involving mercury should be carried out over smooth, lipped surfaces to confine mercury spills and aid in its recovery;
- flooring in dental operatories should be smooth and be free of joints. Carpeting is not recommended in operatories because it is difficult or impossible to decontaminate once mercury has penetrated it;
- do not use vacuum cleaners in areas where mercury is handled. They simply increase the contamination by recycling the mercury into the atmosphere;
- all mercury scrap should be salvaged and stored in tightly closed containers;
- never allow mercury to be dropped in the drain or sewer since this contributes to the ecology problem associated with mercury;
- a good ventilation system is essential. Air filters should be changed regularly;
- only well-fitting capsules should be used during amalgamation;
- an amalgamator with completely enclosed arms and capsule is preferred;
- mercury dispensers should be handled with care and discarded if they leak;
- disposable amalgam capsules will eliminate the possibility of spills during the handling of bulk quantities of mercury;
- a no-touch technique for handling mercury is preferred;
- water spray and suction are required during grinding operations; do not heat mercury or amalgam;
- ultrasonic condensing techniques are contraindicated,
- have periodic mercury vapour level determinations made in operatories,
- a medical check for mercury contamination of the personnel is recommended,
- alert all office personnel involved in handling mercury of its potential hazards and the need to have good safe mercury handling practices.

Handling mercury can be done safely if these guidelines are observed and contamination can be reduced to its absolute minimum. The responsibility for the avoidance of mercury contamination in the operatory lies on the dentist's shoulders so it is most important that the guidelines listed above be followed and observed.

S.A. MacGregor Award



University of Western Ontario graduate, Danny Tomlak and Kris Row, recently graduated from the University of Toronto School of Dentistry, each received the S.A. MacGregor Award for outstanding clinical performance. The award, a gold coin, shown here by Dr. Tomlak, is presented annually by the Ontario Society of Dentistry for Children. Dr. Row and Dr. Tomlak were present to receive their awards at the Society's recent meeting in Toronto.

WHO competition

OTTAWA — The Department of National Health and Welfare, on behalf of the World Health Organization (WHO), recently announced the annual competition for fellowships to study abroad.

All Canadian citizens working as professionals in health care delivery or health education are eligible to apply, with the exception of those engaged in pure research, undergraduate and graduate university students and persons over 55 years of age.

Applicants will be rated by a selection committee on the basis of education, experience, field of activity, proposed area of study and the intended use of newly-acquired knowledge. Responsibility for final selection of fellowship recipients is made by the WHO.

Applicants should apply before August 31, 1979 to: WHO Fellowships, Intergovernmental and International Affairs Branch, Department of National Health and Welfare, Brooke Claxton Building, Tunney's Pasture, Ottawa, Ontario, K1A 0K9.

IN THE NEWS

Dr. Conrad Godin appointed to the Order of Canada

TROIS RIVIERES — Conrad Godin, DDS, general practitioner, teacher and historian was appointed to the Order of Canada recently in ceremonies at Rideau Hall in Ottawa. The award was presented by Governor-General Schreyer.

Dr. Godin graduated from the University of Montreal with a DDS degree in 1933. The following year he received a further DDS from the University of Toronto. His plan was to return to Montreal to teach. When jobs became scarce, he went to his family home, Trois Rivières where he has practised for the last 45 years.

"It is a great honor to be appointed to the Order of Canada," Dr. Godin told the Journal, "not only for me but also for my profession." Few dentists have been named to the Order.

Born in Trois Rivières in 1904, Dr. Godin has a special interest in his home town's past. He can trace his family back to before 1800 and is currently writing a history of the area. He has studied monuments for historical details and has chronicled events and people. He's also generous with his knowledge — for the past 41 years he has conducted tours of Trois Rivières three evenings a week and instructed official tour guides.

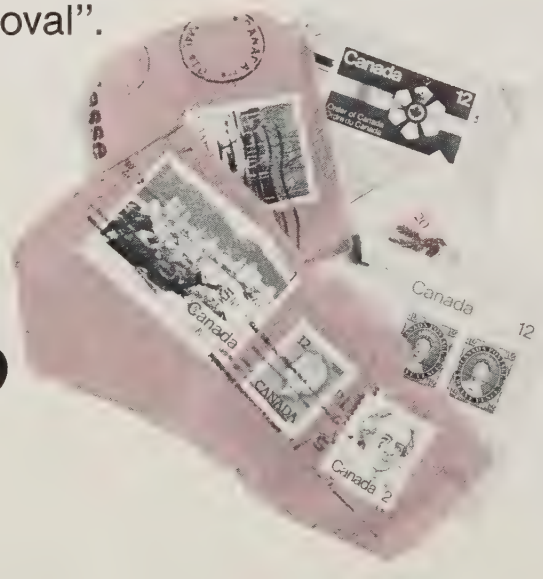
Dr. Godin has received more than 400 letters of congratulations from friends and officials since being appointed to the Order of Canada. On his return home after the presentation ceremonies, he was guest of honor at a reception at St. Joseph's College in Trois Rivières where it was announced that the "Conrad Godin Foundation for History" had been established.

Small consolation

So what if your mail order shipment is damaged in transit, short shipped, riddled with substitutions or late in arriving . . . you can always add those nifty stamps to your collection. But, what if the mail order man uses metered postage . . .?

Seriously, Doctor. Even if you are a philatelist, you're better off dealing with the people at Denco . . . with a well trained staff of dental specialists; and a full line of readily available products and equipment. The kind of people you can count on to get you what you need, when you need it.

Call your Denco man today. He'll win your "stamp of approval".



DENCO

NOTICE is given of the CDA Board of Governors meeting
September 8 and 9, 1979
9 a.m.
Auberge des Gouverneurs
Quebec City

AVIS: Réunion du Conseil des gouverneurs de l'ADC les 8 et 9 septembre 1979
0900 heures.
Auberge des Gouverneurs
Ville de Québec

IN THE NEWS

ALBERTA — *Dr. Morton Shulman, M.D., author of financial books and a former member of the Ontario Legislature, was guest speaker at last month's annual meeting of the Alberta Dental Association. Dr. Shulman spoke about "How to Protect your Financial Position in the Current Crises."*

Dalhousie graduation

HALIFAX — The University Medal in Dentistry was presented to John Paul Laba, during the Dalhousie University School of Dentistry convocation ceremony recently. Dr. Laba also received the Dr. Frank Woodbury Memorial Prize for highest average and the Canadian Society of Oral Surgeons Prize.

"Concern for the dental and oral health of the individual is part of the general health of the whole person," Dr. Isaac Lubetsky, professor emeritus, told the graduates.

The valedictory address was delivered by Dr. Reginald Goodday. Dr. Goodday received the Dr. John W. Dobson Memorial Prize and the American Academy of Periodontology Prize.

Lois Ruth Crabbe-McLean of Springvale, Prince Edward Island and Ann King-Green, St. John, New Brunswick, received the Katie Lubetski Memorial Award for the highest standing in dental hygiene.

Twenty-four students received Doctor of Dental Surgery degrees and 19 graduates were presented with diplomas in Dental Hygiene by Dr. Henry Hicks, president of the University, at the ceremonies.

Royal College Symposium set for Quebec

QUEBEC CITY — The Royal College of Dentists of Canada Symposium will take place in Quebec City, September 9 and 10. The theme of the event is "International Year of the Child: Dental Perspectives."

Speakers from Canada, the United States and Europe will take part in the two-day Symposium.

Dr. C.L.B. Lavelle, program director is also scheduled to chair the opening scientific session, "Status of Oral Health." Dr. D.W. Lewis from Toronto, Ontario, will lead off the meeting discussing "The Concept of Oral Health Status." He will be followed by Dr. D.E. Barmes from Geneva, Switzerland (Oral Health Status of Children — An International Perspective) and Dr. J.W. Stamm from Montreal, Quebec (Oral Health Status of North American Children).

During the opening day's afternoon session, Dr. N. Levine will chair a symposium on "Oral Disease Etiology — Current Thought." Dr. I. Kleinberg from New York City, New York will deal with "Etiology of Dental Caries; Dr. D.L. Anderson from Toronto, Ontario will look at "Etiology of Periodontal Disease"; and Dr. S. Helm from Copenhagen, Denmark will present a paper on "Etiology and Treatment Need of Malocclusion."

The closing day of the symposium, September 10, Dr. D.J. Yeo will chair state of the art presentations in preventive dentistry. "Systemic Fluorides — an Overview," will be presented by Dr. E. Newbrun of San Francisco, California and Dr. H.S. Horwitz of Bethesda, Maryland will discuss "Topical Applications — Fluorides and Fissure Sealants. A. Horowith from Bethesda will look at "Oral Hygiene Measures" and B.G. Bibby from Rochester, New York will discuss "Diet and Nutrition."

British Columbia's Dr. G.S. Beagrie is chairman of the final afternoon session "Implications of Dental Disease" "An Economist's Perspective" will be presented by R.G. Evans of Vancouver, British Columbia. L. Cohen from Bethesda will give "A Sociologist's Perspective" and Dr. J.P. Lussier from Montreal, Quebec will deliver a summation and critical appraisal.

Further information on the RCDC Symposium may be obtained from Dr. Lavelle in care of the University of Manitoba, Winnipeg, Manitoba, R3E 0W3.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on May 31, 1979:

Common Stock Fund	$41.424
Fixed Income Fund	$22.586
Guaranteed Fund	$15.840
Balanced Fund	$11.850

Total assets (market value) of the plan were $34,156,810.64.

The previous month's figures, as of April 30, 1979, stood as follows:

Common Stock Fund	$41.306
Fixed Income Fund	$22.368
Guaranteed Fund	$15.718
Balanced Fund	$11.681

Total assets (market value) of the plan were $34,334,008.19.

For further information write to: Canadian Dental Service Plans Inc., 234 St. George Street, Toronto, Ontario M5R 2P2.

IN THE NEWS

Wolfville's Dr. Jim Logue

Local sportsman, dentist and friend

Three things are important to Wolfville, Nova Scotia dentist, Jim Logue — his family, his profession and sports —and separating them is no easy task.

Dr. Logue and his wife Nancy met when the two were attending Acadia University and he was her basketball coach. He has four daughters, all of whom take after their parents in their love of sport. And he is a general practitioner in Wolfville — by no coincidence home of Acadia's championship basketball team. It was in 1972 that he coached the Acadia Axemen to fame and the National Intercollegiate Championship.

But basketball is not where Dr. Logue first made an impression on the sports world.

Flashing a grin any dentist would be proud to call his own, Dr. Logue takes his time reminiscing about his days in the world of professional baseball — his first love in sports.

"I would rather play baseball than anything else. When I was a kid visiting my grandparents at their farm, my mother would send me to milk the cows and instead I'd take off and play ball."

Dr. Logue grew up in the mining town of Minto, New Brunswick, just outside Fredericton, where he played on senior teams prior to breaking into the New Brunswick/Maine semi pro league. During his graduating year at Acadia where he earned a Bachelor of Science degree in Biology, Dr. Logue got what he still considers the chance of a lifetime — a crack at the majors and a try-out invitation to the Milwaukee Braves' spring training camp in Tampa, Florida.

He was a south paw, a first baseman and a line drive hitter out to win a berth on the team roster.

"This was in 1958. The Braves were on top. They worked on a concept that it's the team that counts more than individual stars and every rookie was rated on a five-point basis — one point each for throwing, hitting and speed and two points for attitude," explained Dr. Logue.

He didn't make the team, but he has never forgotten the Braves' philosophy that most successes depend on attitude. He was still the *Mickey Mantle* of the East to his Maritime fans when he chose to return to Nova Scotia and enter dental school. He graduated in 1962 from Dalhousie University, practised two years in Shelbourne, Nova Scotia and returned to Wolfville in 1964.

His professional baseball dreams behind him, Dr. Logue was ready for the "ideal" life — he was the father of two daughters, practised dentistry in the mornings and coached basketball in the afternoons. Dr. Logue coached the freshman team at Acadia until 1967 when he took over the senior Axemen. By 1972, the Championship year, the travelling and hours away from home took their toll and the "ideal" life began to lose its attraction. He noticed his children, by now numbering four daughters (Terri, Jana, Lori and Kim), were growing up while he was spending more time with his team than his family. He left coaching but he still keeps his thumb in the proverbial plum pudding doing sports commentary for a local cable television company and recruiting basketball talent for Acadia.

Now, Dr. Logue and Nancy, a former teacher, delight in helping out in their daughters' academic and athletic pursuits. Nineteen year-old Terri will be attending try-outs for the Ice Capades this year as well as completing her second year studies at Acadia. Jana, 17, Lori, 15 and Kim, 13 are also competitive skaters and sport is the centre of the Logue family life.

As far as dentistry is concerned, Dr. Logue loves the profession but hates the "business" end of things. He tries to take at least one course a year usually through Dalhousie University's Continuing Education Department and makes a point of attending the National Convention to keep in touch with other dentists and developing dental techniques.

The spirit of competition is ingrained in Dr. Logue. Even in high school, he said, he was out to win. Winning, to him, has "always been a way of self expression.

"I never went out to fight but even as a coach I put as much tension on the team as possible. As long as they gave their best it was alright with me. I only get upset if I think someone isn't giving 110 per cent."

40-year Plaques

REGINA — Five members of the College of Dental Surgeons of Saskatchewan received 40-year Plaques at the Annual Meeting of the College last month.

Dr. S.R. Gelmon, Saskatoon; Dr. R.N. Reid, Regina; Dr. F.S.W. Green, Saskatoon; Dr. R.D. Reid, Prince Albert; and Dr. T.C.H. Robb, Regina each received Plaques.

DIGBY — *The 89th Annual Meeting of the Nova Scotia Dental Association was held last month at the Pines resort in Digby, Nova Scotia. Dr. Rod Moran, president of the Canadian Dental Association, second from right, chats with outgoing president of the Nova Scotia Association, Dr. John Christie, left. Dr. Don Cunningham, president, Nova Scotia Dental Association looks on.*

U.K. speaker at Ontario meeting

Dr. Gerry Winter, introduced by Dr. Arlie Dungy as "Mr. Paedodontics," was this year's keynote speaker at the Annual Meeting of the Ontario Chapter of the Canadian Society of Dentistry for Children held recently in Toronto.

Dr. Winter, professor and chairman, Department of Children's Dentistry, Institute of Dental Surgery, Eastman Dental Hospital, University of London, England, discussed the topic "Oral medicine and its application to paediatric dentistry."

The other guest speaker at the meeting was Dr. George White, associate professor and chairman, Department of Oral Paediatrics, Tufts University School of Dental Medicine. He spoke on "Restorative dentistry for the paediatric patient."

Dr. White is editor of the "Journal of Pedodontics," and chief of Oral Paediatrics, New England Medical Centre in Boston, Massachusetts.

Relating oral and medical problems in children, Dr. Winter drew attention to the role of children's dentists in spotting pathological conditions that are initially manifested by the loss of primary dentition.

Dr. Winter said infantile scurvy has rarely been seen during the last 25 years in England and pink disease, so called because of the ulceration and shinniness around the gingival margin, has virtually disappeared since the realization that it was probably caused by a once-acceptable high per centage of mercury in teething powders.

Commenting that only about 50 or 60 cases have been described in world literature, Dr. Winter described Papillon Lefebvre syndrome as a combination of periodontosis and hyperkeratosis. By age four or five, he said, most children with the disease, a genetic defect, have lost all primary dentition.

Using slides for illustration, Dr. Winter outlined symptoms and diagnostic techniques of case histories of Papillon Lefebvre Syndrome, hypophosphatasia, myelocytic leukemia and congenital neutropenia, among others.

He closed his presentation with some suggestions on how to teach Down's Syndrome children basic oral hygiene. Simply stated, give them an electric tooth brush, he said "and they brush happily and vigourously" whenever they get the opportunity.

CFDE grants approved

TORONTO — At a recent meeting of the Canadian Fund for Dental Education Board of Trustees, over $116,000 in grants were approved.

Teacher training fellowships for dentists and dental hygienists accounted for most of the budget.

Six dentists awarded CFDE fellowships last year received further grants in 1979 to complete their teacher training.

All CFDE fellowship recipients agree to repay the full amount of their award plus interest if they do not accept a teaching position in Canada when their training is completed.

Dr. H.G. Cross of the University of Manitoba received CFDE's special award of $1,500 for teachers. He will spend one month studying methods of cleft-palate management.

Dr. Robert Dupont of Montreal attended the CFDE Board meeting as a new trustee and Hubert Drouin, CDA's newly-appointed executive director was also present for the first time.

Dr. Covit, Mr. Drouin welcomed by Quebec

CDA's president-elect, Dr. Clyde Covit of Montreal and newly-appointed executive director, Hubert Drouin, were guests of the Quebec Dental Surgeons Association during their recent Annual Meeting in Montreal.

After introducing and welcoming Mr. Drouin, QDSA president Dr. Claude Chicoine, extended the Quebec Surgeons Association's best wishes of success to Dr. Covit during his mandate as CDA president.

Dr. Chicoine invited dentists present to attend the CDA convention in Quebec City next September when Dr. Covit will be installed as national president.

Rapport du conseil des matériaux et appareils dentaires

Risques de contamination par le mercure en pratique dentaire

L'amalgame d'argent, le plus couramment employé de tous les matériaux de restauration nécessite la manipulation du mercure. Depuis quelques années, le mercure a été taxé d'élément dangereux et les journaux font constamment état de la contamination des ruisseaux et rivières par le mercure. Les patients savent que le dentiste fait usage du mercure en préparant des obturations et ils se demandent s'il s'agit là d'une procédure sécuritaire. Il devient donc important pour le dentiste d'être au courant des risques impliqués afin de lui faciliter l'application des mesures préventives et les explications aux patients à l'effet que ces procédures sont parfaitement sécuritaires.

Au départ, il existe une importante différence entre le problème écologique de la contamination par le mercure et la contamination accidentelle à la clinique par la manipulation imprudente du mercure. À l'état naturel, le mercure se transforme, par action bactérienne, en mercure méthylique et di-méthylique, deux toxiques qui affectent directement le système nerveux humain.

D'un autre côté, le mercure métallique bien que nocif, n'est pas aussi risqué que le mercure méthylique et il peut être manipulé de façon assez sécuritaire avec les précautions appropriées. La pré-occupation du dentiste doit être le danger d'absorption accidentelle de mercure métallique par les patients et le personnel auxiliaire.

Le contact avec le mercure peut parvenir au patient d'une double source. D'abord, le mercure intégré dans l'amalgame de restauration et ensuite l'exposition au mercure pendant les procédures dentaires. Il a été clairement démontré[1-2], que le mercure fixé dans l'amalgame dentaire est inoffensif. Généralement, le mercure réagit avec l'argent, le cuivre et l'étain présents dans l'alliage dentaire pour constituer des entités chimiques qui ont des propriétés sensiblement différentes de celles de leurs composantes et sont plutôt inertes. Le sel de table, pour faire une comparaison, est relativement inoffensif bien que ses constituants (sodium et chlore) soient assez dangereux. Des tests[3] ont montré que même après 10 ans d'application clinique, il n'existe pratiquement pas de différences de contenu mercuriel dans les amalgames dentaires indiquant ainsi que le mercure n'est ni libéré ni absorbé par le patient.

Le risque le plus plausible pour le patient survient au moment de la pose ou la dépose de l'obturation d'amalgame. Le patient peut, en effet, respirer des particules pendant le fraisage à sec. Accidentellement aussi des particules d'amalgame peuvent être ingérées au moment de la pose. Ces contacts sont relativement peu importants et de courte durée. L'absorption accidentelle est vite rejetée et on ne rapporte aucun cas de patient intoxiqué à la suite de ces causes. Le dentiste peut très facilement protéger son patient des expositions accidentelles au mercure en faisant, de routine, utilisation de la digue pendant les manipulations.

Le dentiste et le personnel auxiliaire risquent davantage la contamination par le mercure. L'absorption directe peut survenir par la peau ou l'ingestion et on rapporte ainsi des cas d'hypersensitivité.

Il est toutefois probable que la principale cause d'absorption de mercure est l'inhalation de ses vapeurs. La plupart des gens ne réalisent pas que le mercure est une substance volatile. À température d'intérieur, la pression de mercure[4] est 20 mg/m3 et cette pression grimpe à 40 mg/m3 avec une augmentation de température de 10°C.

Le taux sécuritaire de mercure dans l'atmosphère a été établi à 0.05 mg/m3 par "l'American Conference of Governmental Hygienists." Ainsi, il y a un risque si le mercure circule dans l'air ambiant pendant de longues périodes de temps, soit en le renversant accidentellement ou autrement. Dans la plupart des bureaux dentaires la concentration mercurielle dans l'air est relativement basse et à un taux sécuritaire. Cependant, cinq pour cent des cliniques dentaires ont un niveau de mercure excédant le taux admissible.

Actuellement, quelques provinces pensent à légiférer pour régulariser l'exposition des employés aux substances toxiques, et le mercure est considéré comme un de ces toxiques pouvant constituer un risque pour la santé si l'exposition est suffisante. Si la profession dentaire peut démontrer qu'elle prend les précautions nécessaires de traiter avec le mercure elle peut alors se passer des règlements gouvernementaux qui s'adressent d'abord à l'industrie.

Le dentiste doit savoir comment manipuler le mercure de façon à éviter de le renverser et de garder le niveau atmosphérique à des limites sûres.

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Le Docteur Ralph Barolet est directeur du Conseil sur les matériaux et appareils de l'Association Dentaire Canadienne.

Quelques observations à retenir

- Le mercure devrait être emmagasiné dans des bouteilles scellées et incassables, en milieu frais.
- Tout débris de mercure doit être amassé aussitôt que possible.
- Toute procédure impliquant le mercure doit être faite au-dessus de surfaces lisses afin de pouvoir facilement repérer les débris et aider à les récupérer.
- Les planchers des cliniques opératoires doivent être lisses et sans joints.
- Les tapis sont à déconseiller en raison de la difficulté, sinon l'impossibilité de le décontaminer lorsqu'il y a eu pénétration de mercure.
- Éviter le nettoyage par l'aspirateur dans les endroits où le mercure est manipulé. Ces appareils augmentent la contamination en recyclant le mercure dans l'atmosphère.
- Les débris de mercure devraient être épargnés et emmagasinés dans des contenants hermétiquement fermés.
- Ne jamais éliminer le mercure par le drainage domestique afin de ne point augmenter le problème écologique associé au mercure.
- Un bon système de ventilation est essentiel. Les filtreurs à air doivent être régulièrement changés.
- L'amalgamation doit être faite dans les capsules bien étanches.
- Il est préférable d'utiliser l'amalgamateur dont les bras et la capsule sont complètement recouverts.
- Les contenants de mercure doivent être manipulés avec soin et rejetés s'il ne sont pas étanches.
- Les capsules disposables d'amalgame éliminent la possibilité de dispersion pendant la manipulation.
- Il est préférable de manipuler le mercure sans contact direct du toucher.
- Jet d'eau et succion sont requis pendant le fraisage.
- Éviter de chauffer mercure et amalgame.
- La condensation par technique ultrasonique est contre-indiquée.
- Faire périodiquement le relevé du taux des vapeurs mercurielles dans le milieu ambiant.
- Faire déterminer médicalement s'il y a contamination du personnel.
- Aviser tout le personnel impliqué dans la manipulation du mercure des risques possibles et du besoin de prendre les précautions nécessaires pour la sécurité.

La manipulation du mercure peut- est du ressort des dentistes d'éviter être faite prudemment à l'aide de la contamination par le mercure de ces précautions et la comtamination sorte que les directives mentionnées peut-être réduite au minimum. Il soient suivies.

Une équipe de spécialistes redonne un espoir aux victimes

HALIFAX — Une équipe de spécialistes en chirurgie plastique, en chirurgie dentaire, en prosthodontie et en pathologie orthophonique, se consacrant à la réadaptation des gens affligés d'une fissure palatine, redonne maintenant un espoir aux victimes de cette anomalie buccale. L'équipe a son port d'attache à Halifax, à l'hôpital Izaak Walton Killam pour les enfants.

Selon le Dr Edward Hannigan, président de la société des spécialistes dentaires de Nouvelle-Écosse, l'équipe a traité avec succès trois adultes que d'autres centres médicaux avaient prononcés incurables. Après le traitement chirurgical et une rééducation orthophonique, tous trois manifestaient une nouvelle confiance en eux et pouvaient communiquer et manger avec plus de facilité.

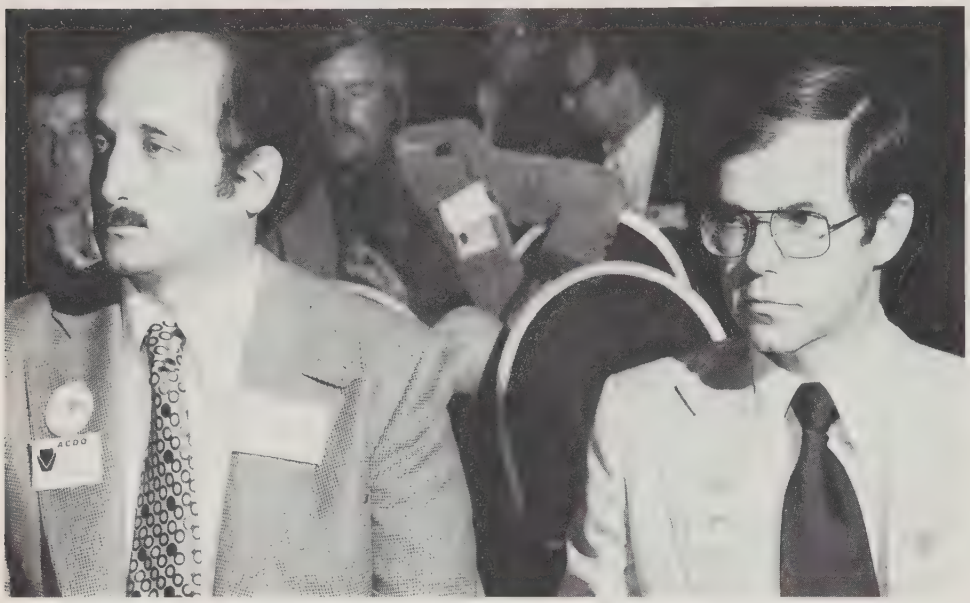
Le Dr Hannigan explique que l'équipe s'efforce de préserver les dents naturelles de ces patients, car les victimes d'une fissure palatine ne peuvent porter de dentiers ordinaires. La chirurgie corrective devrait débuter dès la plus tendre enfance, car même les très jeunes enfants éprouvent de graves difficultés à manger.

C'est à l'occasion d'un colloque récent, à Halifax, portant sur les problèmes relatifs à cette anomalie, que le Dr Hannigan a fait ces remarques intéressantes.

Dr Helen Mussallem . . .

OTTAWA — La directrice exécutive de l'Association des infirmières canadiennes, le Dr Helen Mussallem, a mérité dernièrement la médaille de distinction du collège des enseignants de l'Université Columbia. Elle devient ainsi la première Canadienne et la première infirmière à recevoir pareille distinction.

LES ACTUALITÉS



Le président désigné de l'ADC, le dr Clyde Covit, à gauche, et M. Hubert Drouin, le nouveau directeur général de l'ADC.

Dr Conrad Godin est reçu membre de l'Ordre du Canada

TROIS-RIVIÈRES — Conrad Godin, D.D.S., praticien, professeur et historiens devenait dernièrement l'un des rares dentistes à être reçu membre de l'Ordre du Canada. Sa décoration lui a été remise par le Gouverneur général, le très honorable Edward Schreyer.

Diplômé de l'Université de Montréal, où il a reçu son doctorat en chirurgie dentaire en 1933, le Dr Godin poursuivit son perfectionnement à l'Université de Toronto, l'année suivante, en vue de retourner ensuite à Montréal dans le domaine de l'enseignement. Les emplois y étant rares, il alla plutôt établir sa pratique dans sa ville natale, à Trois-Rivières, où il a exercé sa profession au cours des 45 dernières années.

Ce n'est pas la première fois que le Dr Godin mérite une distinction, car il avait reçu en 1967 la Médaille de la Confédération. Au cours de sa carrière, il a oeuvré au sein d'organismes tels la Société dentaire rurale, la Société dentaire de Québec, le Collège international des dentistes et le Collège des chirurgiens dentistes.

"C'est un grand honneur d'être admis au sein de l'Ordre du Canada, a déclaré le Dr Godin au Journal, non seulement pour moi mais aussi pour la profession à laquelle j'appartiens."

Né à Trois-Rivières en 1904, le Dr Godin manifeste un intérêt poussé envers l'histoire de sa ville natale. Il a retracé la généalogi de sa famille au 18e siècle et il travaille actuellement à la rédaction d'une histoire de la région. Son souci de l'exactitude l'a incité à l'étude des monuments, des événements et des gens. Il partage généreusement ses connaissances, car il organise des excursions guidées de Trois-Rivières depuis 41 ans, trois soirs par semaine, et participe à la formation des guides officiels.

Depuis qu'il a reçu sa dernière distinction, le Dr Godin a été enseveli sous une avalanche de lettres de félicitations d'amis et de collègues — plus de 400. À son retour à Trois-Rivières, après la cérémonie tenue à la résidence du Gouverneur général, à Ottawa, il a été l'invité d'honneur à une réception donnée au collège Saint-Joseph, à l'occasion de laquelle on a annoncé l'établissement de la "Fondation historique Conrad Godin".

Dr Covit et M. Drouin ont été les invités du Québec

Le président désigné de l'ADC, le dr Clyde Covit de Montréal, accompagné du nouveau directeur général de l'ADC, M. Hubert Drouin, ont été les invités de l'Association des chirurgiens dentistes du Québec lors de l'assemblée générale de ce membre corporatif, le 29 mai dernier.

À cette occasion, le président de l'ACDQ, le dr Claude Chicoine, après avoir souhaité la bienvenue à M. Drouin a rendu hommage au dr Covit, soulignant ses nombreuses réalisations dans le passé. Le dr Chicoine a transmis au futur président national les meilleurs voeux de succès des dentistes québecois et a invité les nombreux membres présents à participer au congrès annuel de l'ADC qui aura lieu à Québec en septembre prochain. C'est à cette occasion que le dr Covit sera intronisé comme président de l'ADC.

Un projet-pilote de formation d'hygiénistes

REGINA — Un projet-pilote de formation d'hygiénistes dentaires débutera à l'automne à l'Institut Wascana, à Regina, en Saskatchewan. On prévoit que douze étudiants s'incriront à ce programme de formation du département d'éducation permanente.

Le projet se déroulera sous la surveillance d'un comité d'orientation composé de représentants du collège des chirurgiens dentistes de Saskatchewan, de l'association des hygiénistes dentaires de Saskatchewan, du collège de dentisterie de l'Université de la Saskatchewan et du plan dentaire de la Saskatchewan.

Le programme de formation durera de quatre à six mois.

Le gouvernement annule la dette

WINNIPEG — Les emplois sont rares et le gouvernement manitobain a pris la décision de mettre fin à un programme de prêts d'environ $500,000 qui servait à financer la formation d'infirmières dentaires. Les bénéficiaires des prêts s'engageaient à venir ensuite travailler dans cette province dans le cadre du programme de soins dentaires pour enfants.

En vertu de ce programme, plus de 80 étudiantes avaient reçu un prêt de $6,950 chacune pour acquérir leur formation d'infirmière dentaire en Saskatchewan, à condition de revenir au Manitoba pour y participer au programme de soins dentaires pour enfants. Or, le gouvernement n'est plus en mesure d'offrir des emplois à ces diplômées.

La plupart des 28 diplômées de l'année dernière ont pu trouver du travail, mais pas nécessairement pour le compte du gouvernement. Bientôt cette année, 32 autres diplômées tenteront de se tailler une place sur le marché du travail après leurs deux années d'études.

Le salaire des infirmières travaillant dans le cadre du programme de soins dentaires était ajusté de sorte qu'elles remboursent leur prêt à raison de $200 par mois tout en travaillant. L'autre solution consiste à rembourser le prêt au moyen de paiements identiques au comptant.

Toutefois, le gouvernement en est arrivé à la conclusion que la meilleure solution est maintenant d'annuler la dette des infirmières.

Il se peut qu'il n'y ait aucun lien entre la tabagisme et la pression sanguine chez les hypertendus. Le lien entre l'obésité et la pression n'a été trouvé que chez les non fumeurs. (Médecine Moderne du Canada — mai 1979 — p. 606).

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mai 1979:

Fonds d'actions ordinaires	$41.424
Fonds à revenu fixe	$22.586
Fonds garanti	$15.840
Fonds de placement équilibré	$11.850

L'avoir total (valeur marchande) du régime s'élevait à $34,156,810.64.

Au 30 avril 1979, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$44.306
Fonds à revenu fixe	$22.368
Fonds garanti	$22,064
Fonds de placement équilibré	$11.681

L'avoir total (valeur marchande) du régime s'élevait à $34,334,008.19.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

Cérémonie de convocation à Dalhousie

HALIFAX — À l'occasion de sa cérémonie de convocation, tenue récemment, l'Université Dalhousie a décerné sa médaille de dentisterie au Dr John Paul Laba, en plus de lui attribuer le prix commémoratif Dr Frank Woodbury, qu'il a mérité en obtenant la plus haute moyenne de l'Université, ainsi que le prix de l'Association canadienne des spécialistes en chirurgie buccale et maxillo-faciale.

Pour sa part, le Dr Peter Balsard a reçu une récompense honorifique en reconnaissance de sa contribution au programme d'activités étudiantes pendant les dix années qu'il a passées à l'Université Dalhousie.

"On ne peut nier que la santé dentaire et buccale fasse partie intégrante de la santé globale d'une personne", a déclaré le Dr Isaac Lubetsky, professeur honoraire, à l'assemblée des diplômés.

L'allocution d'adieu a été prononcée par le Dr Reginald Goodday. Ce dernier s'est vu remettre le prix commémoratif Dr John W. Dobson ainsi que le prix de l'American Academy of Periodontology.

Lois Ruth Crabbe-McLean, de Springvale (Île du Prince-Édouard) et Ann King-Green, de Saint-Jean (N.-B.) ont toutes deux reçu le prix commémoratif Katie Lubetski pour leur succès dans leurs études en hygiène dentaire.

Enfin, vingt-quatre étudiants ont reçu leur doctorat en chirurgie dentaire et dix-neuf autres, leur diplôme en hygiène dentaire. La remise des diplômes s'est faite par le Dr Henry Hicks, président de l'Université.

Une étude des dents

EDMONTON — Une étude des dents, entreprise par le Dr J.W. Osborn, professeur de dentisterie à l'Université de l'Alberta, dévoilera peut-être le mystère du processus de régénération dans le corps humain.

Cette étude s'inspire de la paléontologie, de l'embryologie et de l'anatomie comparative et porte sur l'évolution du développement des dents. Le Dr Osborn ne manquera pas de sources de renseignements, car on possède des dents fossiles dont l'âge atteint 500 millions d'années.

Le Dr Osborn recueille actuellement des données grâce à l'observation de la croissance des dents chez des souris de laboratoire.

Montmorency Falls

A visit to Old and New Quebec

While dentists are attending meetings and scientific discussions, their guests have a variety of entertainment programs to look into.

Sightseeing tours include a choice of a visit to Old and New Quebec, featuring a look at Place D'Armes, Place Royal, the Plains of Abraham, Parliament Hill, Laval University and the old French Quarter; a tour to Ste-Anne de Beaupré takes visitors along the Old King's Road with stopovers at the Montmorency Falls, the bread ovens, the wood carving shop and the Shrine of Ste-Anne de Beaupré. This tour features a meal at a French Canadian farm, L'Auberge de la Fine Gueule (at an extra cost of $12.); a tour of the Island of Orleans highlighted by stops at the old church and a weaving house.

All of these tours, when enjoyed during the morning hours may be combined with one of the afternoon activities that include a cooking demonstration at the Chateau Frontenac Hotel; a wine and cheese party in the vaults of the Maison Chevalier; or a fashion show in the Eden room atop the Quebec Hilton.

Specific information about how tours are organized can be obtained at the time of registration.

Dr. Bloom on computer use

Dr. Murray Bloom is a general practitioner in Vancouver, British Columbia. He is a graduate from the Faculty of Science, University of British Columbia and earned his dental degree at the University of Alberta.

Prior to practising dentistry, he headed a market research company working in both British Columbia and Alberta. He has studied computer training at both the B.C. Institute of Technology and the University of Alberta.

Besides his interest in "Computers in Dentistry," the topic of his pretation to the CDA Convention, Dr. Bloom is currently involved with computers in economic analysis.

Dr. Bloom's seminar is designed to instruct dentists with little or no background in the field of Computer Science on the role of computers in the modern dental office.

This is a three-part discussion. Part one will be a general explanation of electronic data processing — its history, present technology, future developments and an introduction to hardware and software concepts. Part two will deal with automated dental administration and part three will look at the installation and implementation of a dental office system.

Dr. Murray Bloom

'Practical Periodontics for the General Practitioner' — Dr. Philip Hoag

Dr. Philip Hoag will present his paper 'Practical Periodontics for the General Practitioner' Tuesday morning, September 11.

The presentation will include an update on current concepts of the anatomy and physiology of the periodontium as well as the etiology and pathogenesis of gingivitis and periodontitis. The diagnosis and treatment of most chronic and acute periodontal lesions will be discussed with an emphasis on performance in a general dental practice. Techniques to be described include the periodontal examination, instructions in oral hygiene, scaling and root planing, gingival curettage and surgical correction of periodontal pockets and isolated areas of gingival recession.

Dr. Hoag is in private practice limited to periodontics and is currently executive associate dean, Southern Illinois University, School of Dental Medicine. He is a 1961 graduate of Northwestern University Dental School and holds a Certificate in Periodontics from Tufts School of Dental Medicine.

'Fixed and Removable Prosthodontics'

Dr. Roger Masella will discuss the topic 'The Relation Between Fixed and Removable Prosthodontics'. He is currently in private practice in Sherbrooke, Quebec and is responsible for the prosthodontics program for interns and residents at St. Vincent de Paul Hospital in that city.

A graduate of New York University College of Dentistry in 1966, Dr. Masella completed an internship at the U.S. Naval Hospital in Camp Pendleton, California in 1967. His residency included a three year program in prosthodontics with special emphasis on maxillofacial prosthetics at the Mayo Clinic. He received a Master of Science in Dentistry from the University of Minnesota in 1972.

Dr. Masella is a member of eight dental associations including the Canadian Dental Association, the American Dental Association, the Canadian Association of Prosthodontists and the Quebec Association of Prosthodontists.

Author, editor, Dr. William Gilmore to discuss operative dentistry

Dr. William Gilmore, a full-time general practitioner in Indianapolis, Indiana will deliver a paper entitled 'Recent Developments in Operative Dentistry for the General Practitioner — Prevention and Mechanics.'

Dr. Gilmore will discuss current procedures for the diagnosis and restorative treatment of natural dentition. The selection of materials for restorations, bases and liners will also be included. Dr. Gilmore will illustrate research findings and manipulative factors leading to the selection of better materials.

He will look at the prevention of disorders and the mechanical management of problems found by the general practitioner to encourage conservative, long-lasting patient treatment.

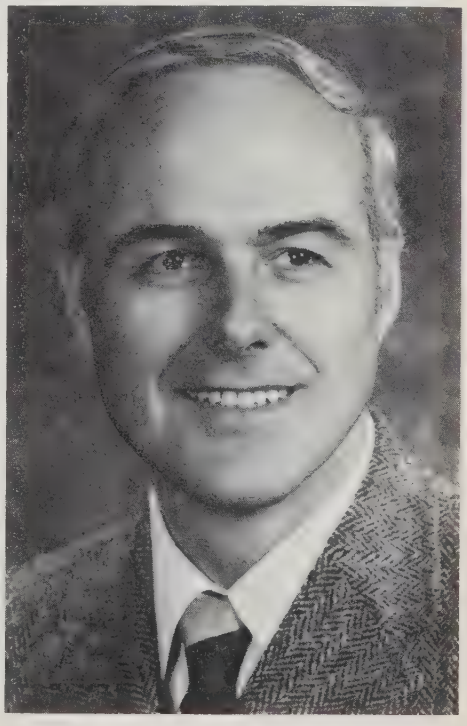
Special attention will be paid to the amalgam, resin and cast gold restoration.

Dr. Gilmore graduated from Indiana University School of Dentistry with a D.D.S. in 1958 and an M.S.D. in 1961. He was chairman of the Department of Operative Dentistry at that school from 1964 to 1970.

Chairman of the Indiana Dental Political Action Committee, Dr. Gilmore is also a member of the Board of Directors of the American Dental Political Action Committee and the Council on Dental Materials and Devices of the American Dental Association. He is a trustee with the Indiana Dental Association.

Dr. Gilmore's research activities have included the clinical testing of dental materials and techniques and the study of dental pulp. He has published over 30 articles.

He is the author of the textbook 'Operative Dentistry' and co-author of 'Current Therapy in Dentistry'. Dr. Gilmore is currently editor of the Indiana Dental Association Journal. He has served as a consultant to the Journal of the American Dental Association and is a member of the Editorial Council of the Journal of Dental Education.



Dr. William Gilmore

Sainte-Anne de Beaupré

Activités du Québec

Pendant que les congressistes seront aux réunions scientifiques, leurs invitées auront un grand choix d'activités auxquelles elles pourront participer chaque jour.

- Visite guidée du Québec moderne et du vieux Québec incluant un arrêt à la Place d'Armes, la Place Royale, les Plaines d'Abraham, la colline parlementaire, l'Université Laval et le quartier latin.
- Une excursion à Ste-Anne de Beaupré par le Chemin du Roy, avec arrêts aux Chutes Montmorency, aux fours à pain, aux boutiques de sculptures sur bois et à la Basilique de Ste-Anne. Ce tour comprend aussi, au choix des dames, un déjeuner à une ferme québecoise: l'Auberge de la Fine Gueule. (Un supplément de $12.00 doit être prévu pour ce lunch.)
- Un tour de l'Ile d'Orléans sera agrémenté d'arrêts aux vieilles églises de l'Ile et à des boutiques de tisserands.

Toutes ces excursions, si elles sont faites le matin, peuvent se poursuivre avec une des activités prévues pour l'après-midi, telles: une démonstration culinaire au Château Frontenac, une dégustation de vins et fromages aux voûtes de la Maison Chevalier ou un défiler de modes à la salle Eden de l'hôtel Hilton.

Les renseignements quant à l'organisation de ces activités pourront être obtenus à l'inscription du congrès.

ACCÈS FACILE

La région de Québec est facile d'accès par tous les moyens de transport. Plusieurs compagnies d'autobus et deux compagnies de chemins de fer (le Canadien Pacifique et le Canadien National) déposent les voyageurs au centre même de la ville.

N'attendez pas. Inscrivez-vous dès maintenant

Le Congrès national de l'Association dentaire canadienne aura lieu à Québec, du 9 au 12 septembre 1979. Nous suggérons fortement que vous vous inscriviez à l'avance. Afin de vous faciliter les choses, il y a, à l'arrière de ce numéro, une formule d'inscription et de réservation d'hôtel. Remplissez-la et renvoyez-nous la accompagnée de votre chèque, dès aujourd'hui.

Denis Forest et les radiographies

L'exposé du Dr Denis Forest, chef de la section de radiologie, Faculté de Médecine dentaire, Université de Montréal, s'intitulera "Docteur, les radiographies dentaires sont-elles dangereuses?"

Au cours des dernières années, les professionnels de la santé, de même que le public, ont été préoccupés par l'ampleur du problème des radiations de sources médicales et dentaires.

Les aspects suivants seront abordés: mise à jour sur les doses de radiation d'origine dentaire, pour l'examen complet de la bouche et l'examen panoramique; perfectionnements récents en radiographie conventionnelle et panoramique; signification et importance des nouveaux règlements pour le dentiste; et indications et interprétation du cliché panoramique.

Le Dr Forest a obtenu son B.A. en biologie et en chimie à l'Université de Montréal et il a obtenu son DDS de la même institution en 1965. Il a un MSD en Médecine buccale (diagnostic et radiologie) de l'Université de l'Indiana.

Dr Masella: "L'ensemble des prothèses"

L'exposé du Dr Roger Masella, de Sherbrooke, Québec, s'intitulera 'L'ensemble des prothèses complètes, partielles et fixes'.

Son discours portera sur un cas typique d'un dentier complet du maxillaire supérieur avec quelques dents du maxillaire inférieur, s'y trouvant habituellement dans la région antérieure.

Il mettra l'accent sur la planification et sur la préparation d'une prothèse fixe pour jumeler les dents en vue d'obtenir un support assez solide pour un dentier partiel.

L'emphase de la conférence sera mise sur les techniques pratiques que les généralistes pourront appliquer facilement et qui leur feront éviter de provoquer des problèmes communs.

Le Dr Victor Legault . . .

Le Dr Victor Legault a sa pratique privée à Montréal. Durant la première partie de son exposé au Congrès, il traitera de "La pédodontie, importance de la dentition primaire." Il soulignera cette importance en insistant sur la relation qui existe entre la dentition primaire et la croissance, la digestion, la phonétique et l'esthétique.

La deuxième partie de sa communication s'intitulera "Le diastème labial: son étiologie, son évolution et une nouvelle approche de traitement."

A l'aide de diapositives, il illustrera la technique de mordançage et de résine acrylique pour corriger certains cas de diastème labial.

Dr Roger Masella

CDA NATIONAL CONVENTION
CONGRÈS NATIONAL DE L'ADC

Québec, P.Q., Sept. 9-12, 1979

Registration and hotel reservation forms are included at the back of this issue.

Vous trouverez à la fin de ce numéro une formule d'inscription et de réservation d'hôtel.

directeur, Comité de l'inscription
Dr Claude Bussière
chairman, Registration Committee

INSCRIVEZ-VOUS MAINTENANT

REGISTER NOW

SCIENTIFIC

A case is presented of an unusual depression of circulating neutrophils following oral penicillin therapy. The differential diagnosis of acute gingivitis with haematological changes is discussed.

Penicillin induced neutropenia

David Mock, DDS, PhD, FRCD(C)
Derrick Abbott, MB, ChB, FRC(Path)
Albert Choong, LRCP, CSI, CCFP(C)
Toronto, Ontario

Adverse reactions to oral penicillin occur infrequently and haematological manifestations are rare. Haemolytic anaemia[1-3] and leukopenia[4-6] have been reported after parental administration of high doses. The leukopenia is considered to be a result of immunological destruction of white cells in the peripheral circulation, usually resulting in an agranulocytosis.

Agranulocytosis or granulocytopenia is more common in women than in men and produces a lowered resistance to infection. In extreme circumstances, this may result in the patient's death due to overwhelming infection. The patient usually complains of weakness and generalized malaise, with a low-grade but persistent pyrexia. The oral manifestations include dysphagia, oral and pharyngeal ulceration and lymphadenopathy. There may also be a marked acute periodontitis with necrosis.

These clinical findings are not specific in themselves and the condition can closely mimic acute necrotizing ulcerative gingivostomatitis. Leukaemia, particularly the acute granulocytic type, can manifest in a similar fashion. For these reasons a haematological evaluation is warranted for any patient presenting with such signs and symptoms not readily responding to local therapy. The following case is an example of such a situation.

Case Report

A 34 year old woman was referred to the Dental Department of The Mount Sinai Hospital because of persistent gingival pain and swelling. Approximately one month before her presentation, a right mandibular bicuspid was endodontically treated. Two weeks later, swelling appeared buccal to this tooth and she was referred to an oral surgeon, who extracted the tooth. After four days, she developed a throbbing pain in her right mandibular teeth and some generalized gingival swelling. Penicillin was prescribed but the pain and swelling continued and, in fact, became progressively worse. At the time of the patient's presentation in the hospital dental clinic, she had been on penicillin therapy for approximately two weeks and had developed a persistent fever, malaise and extreme discomfort in her mouth. She reported an inability to sleep and to eat properly.

On examination, the patient appeared weak and lethargic. Her gingivae were edematous and erythematous (Fig 1 and 2). This was most marked on the buccal aspect of the mandibular anterior teeth and the lingual aspect of the left posterior mandibular teeth, where pus could be expressed from her gingiva and periodontium. Lymph nodes were palpable bilaterally in the submandibular space and in the neck. Her blood pressure was 115/80 with a pulse rate of 110 per minute. Her temperature, taken orally, was 38°C.

Fig 1 The labial gingivae at time of admission at hospital were swollen and erythematous, with a pustule labial to the 22 and pus draining from between 41 and 31.

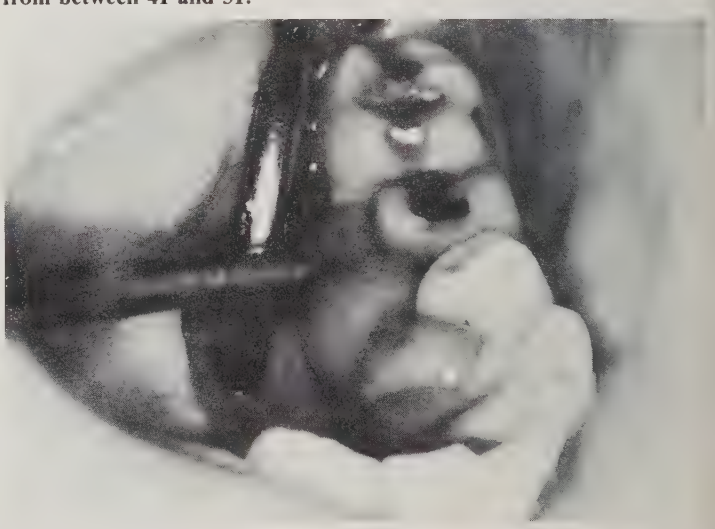


Fig 2 The lingual mandibular gingivae were markedly swollen and soft. Pus could be expressed from the gingival margins.

A routine haematological examination revealed a white blood count of 6,000 with 37 per cent polymorphonuclear leukocytes and 26 per cent band cells.* Her sedimentation rate was 60 mm/hr.** The remainder of this examination was within normal limits. A heterophile antibody test done at this time was non-reactive.

On the following day, the patient returned complaining of an increased severity of her symptoms and was admitted to hospital. On admission, her WBC was 4,300, of which 30 per cent were polymorphonuclear leukocytes and 24 per cent were band cells. Her ESR was 70 and temperature was 38.2°C. Routine urinalysis showed +2 protein on admission.

While in hospital, the antibiotic was discontinued and the patient was given only propxyphene, as required, for pain. Because of the proteinuria, an IVP was done to rule out a urinary tract infection; this was negative except for a ptotic right kidney. The patient's condition rapidly improved after penicillin was discontinued. She subjectively felt much better, oral discomfort was reduced and the gingival swelling and inflammation decreased considerably. Her white blood count increased and the proportion of polymorphonuclear leukocytes markedly increased (Fig 3). A bone marrow sample taken five days after admission showed it to be in a reactive or recovering state. The peripheral neutrophil alkaline phosphatase (NAP) scores were well above normal values, indicating functional activity. After five days, her temperature was normal, her WBC was 8,600 with 66 per cent polymorphonuclear leukocytes and only 7 per cent band cells. A routine oral prophylaxis was performed and the patient was discharged on Cephalosporin therapy, 250 mg q.i.d., to control secondary infection.

Since the patient's discharge, she has been followed up, both in the dental clinic and the family practice unit. Her oral and gingival conditions have markedly improved, with no evidence of gingival swelling and no reported discomfort. Her blood count has remained normal over the past two months of observation. Although she does have a severe periodontitis which will require appropriate periodontal treatment, there has been no evidence of a recurrent acute exacerbation.

*Normal white count is approximately 4,000-11,000 cu mm with 50-70 per cent polymorphonuclear leukocytes and 0-5 per cent band cells.

**Normal erythrocyte sedimentation rate for a female is 0-10 (Westergren method).

Discussion

There are four diagnoses to be considered in this case: (1) acute necrotizing ulcerative gingivostomatitis; (2)

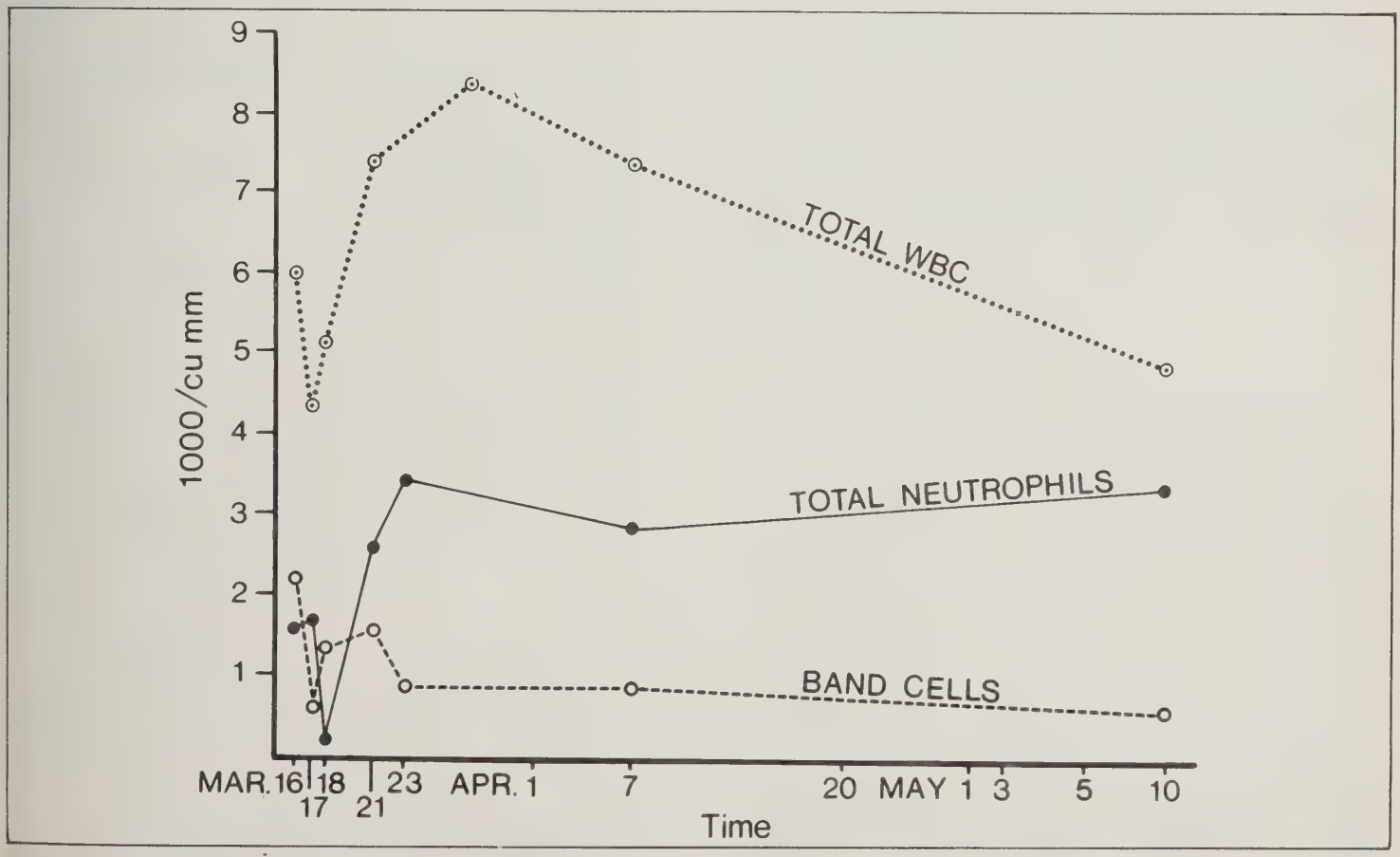


Fig. 3. A graph of the patient's leukocyte, band cell and polymorphonuclear leukocyte counts from one day before admission.

infectious mononucleosis; (3) leukaemia: and (4) neutropenia secondary to penicillin.

In acute necrotizing ulcerative gingivostomatitis (ANUG), one would expect a leukocytosis and particularly a neutrophilia; also, the gingival papillae would appear punched out, and the patient's remission on cessation of the antibiotic therapy could not be explained. Infectious mononucleosis, which may present with only malaise and fever, is usually accompanied by a sore throat and, almost inevitably, by characteristic lymphocyte atypia. Serologic changes may be late but usually show significant rise in titre. This patient showed only an occasional atypical mononuclear cell and her heterophil antibody test was negative.

Neutropenia with any atypia always raises the possibility of leukaemia, but there was no blastosis and the high neutrophil alkaline phosphatase score was indicative of stress — in this case, infection — rather than the values associated with the leukaemias. The reactive bone marrow reflected a regeneratory response and ruled out malignancy and was supported by the subsequent return to peripheral normality.

The last diagnosis, neutropenia secondary to penicillin, is compatible with the clinical presentation and history of this patient. Her condition continued to worsen while she was taking the antibiotic but when this treatment was discontinued, she rapidly improved. The changes in her blood picture are quite compatible with this diagnosis as is the observation of hyperplastic bone marrow. In a classical neutropenia, one would expect a considerably lower neutrophil count as has been demonstrated in the previous reports of penicillin-induced granulocytosis. However, in those cases, the antibiotic was administered in high doses parentally, whereas in this case the dosage was considerably lower and the drug was taken orally.

Besides demonstrating a rare adverse effect of penicillin, this case exemplifies the need for careful evaluation of any patient with an apparently simple problem, not responding or responding adversely to treatment. Haematological examination is often indicated and useful in such situations.

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Local complications which may develop from the intravenous injection of diazepam are discussed. The cause and treatment are outlined, including precautions necessary to avoid the occurrence of these complications.

Local complications with intravenous diazepam

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Since first being synthesized in 1961, intravenous diazepam has found world-wide acceptance as a sedative in such diverse fields as operative dentistry, obstetrics, gastroscopy,orthopaedic manipulations and minor surgery. Its popularity is not due solely to its sedative properties but also to the attendant amnesia, muscle relaxation and its high safety index. Being an anticonvulsant, it is also the drug of choice for the treatment of status epileptics and other convulsive disorders. Systemic adverse reactions are rare with the more commonly reported being respiratory arrest or depression (especially in the elderly), allergic reactions, behavioural idiosyncracies, hypotension and glaucoma. Local adverse reactions are more common by far, with many cases of thrombophlebitis, and a few isolated cases of intra-arterial injections being reported.

With the teaching of intravenous sedation in dentistry being established in Canadian Dental Schools,[1] and with the increasing use of these techniques in dental offices, these local complications will become more relevant to the dental profession. In a seven year period between October 1969 and 1976 the United States Department of Health, Education and Welfare received 260 reports concerning complications with intravenous diazepam in the medical and dental field. Over one-third of these were due to local complications, the majority of which may be described as minor. The other two thirds were mainly due to medical conditions which normally would not be encountered in the dental office.

Thrombophlebitis

Thrombophlebitis was the most commonly reported local complication (72 cases of a total of 94) but it is probably such a relatively common occurrence that only the more severe cases were reported.

There was no correlation between the ages of the patients. Thrombophlebitis occurred in patients aged 18 to 62 years. There was, however, an increase in the number of females over males (43:28). In the majority of cases the condition was noticed by the patient rather than by the attending dentist or physician, so that this female:male ratio may be an indication of greater concern and observation of female patients rather than an actual increase in incidence.

Incidence of thrombophlebitis by method of injection

Table 1

Method of injection	Incidence of thrombophlebitis
Direct injection	35
Via intravenous drip	33
Mixed with patients blood	2
Flushed with patients blood	1

Incidence of thrombophlebitis by site of injection

Table 2

Site of injection	Incidence of thrombophlebitis
Dorsum of the hand	40
Wrist	3
Forearm	7
Cubital fossa	17
Not reported	4

The method of injecting diazepam intravenously did not apparently affect the incidence of thrombophlebitis. Table 1 illustrates that the two most common methods of administration, by direct intravenous injection and by injecting via an established intravenous drip, had similar frequencies of thrombophlebitis, while the less common methods had, of course, lower incidences.

The site of injection (Table 2) may initially suggest that the use of the veins in the back of the hand rather

than the larger veins of the cubital fossa, predisposed to thrombophlebitis.

It would also appear that the amount of diazepam injected is not a predisposing factor as thrombophlebitis was initiated with levels as low as 5 mg and as high as 45 mg. Nor can symptoms at the time of injection be used as an indication of probable thrombophlebitis, as pain at the time of injection was rarely reported as accompanying this complication.

The onset of thrombophlebitis (at least when it was first observed) was most frequently two to three days after intravenous administration (Fig 1). It may be postulated that those observed after one week postoperatively had probably gone unnoticed before this time.

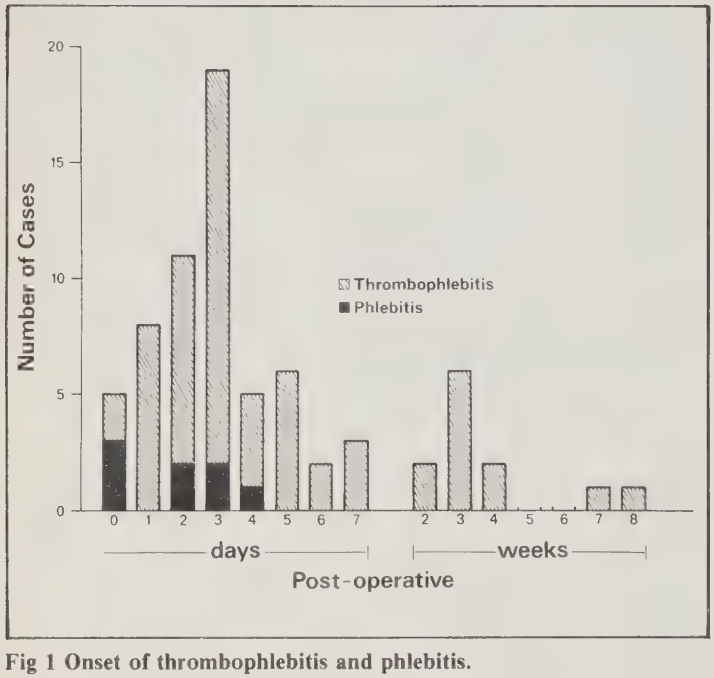

Fig 1 Onset of thrombophlebitis and phlebitis.

The duration of the thrombus, where reported, was most commonly four weeks (five cases) followed by three weeks (three cases) and five weeks (two cases). However, three did last for over three months, one for four months, and one for six months.

In the majority of cases, the extent of the thrombus was not indicated. Of those reported, 15 were over six inches in length, four of which extended from the dorsum of the hand to the cubital fossa, two extended from the cubital fossa to the axilla and two extended from the back of the hand to the axilla.

It would appear that the most common method of treatment carried out was simply patient reassurance, as 41 cases received no specific treatment. The application of moist heat packs was the most popular treatment (18 cases) followed by administering antibiotics (four cases), anticoagulants (four cases) and phenylbutazone (three cases).

Phlebitis

Phlebitis as a separate entity was reported in only eight cases.

These cases were typically described as red, edematous and painful, following the course of the vein. In only three cases was the phlebitis obvious during, or shortly after, treatment, the others being noted several days later (Fig. 1). In contrast to thrombophlebitis, all eight conditions received treatment, which may account for their failure to progress to thrombus formation. In two cases where the phlebitis was observed soon after injection of diazepam, ice packs were used, and where the phlebitis was not noticed until after 24 hours, heat packs were applied. Antibiotics, anticoagulants and analgesic/anti-inflammatory drugs and, in one case, cortisone, were the drugs used to combat the possibility of infection, pain and thrombus formation.

Neuropathies

Two cases of neuropathy following intravenous diazepam administration were reported. A 40 year old female, received 10 mg of diazepam and 50 mg of meperidine intravenously in the antecubital fossa. She remained in hospital for three weeks following the procedure, during which time there was no pain or discomfort and no clinical pathology at the site of injection. Following discharge she claimed to have developed a median nerve neuralgia which persisted for several months.

A 53 year old male received 10 mg of diazepam intravenously. A vein in the wrist was used since the larger veins had become thrombosed due to previous multiple venepunctures. During the injection the patient complained of pain at the site of injection, and two days later complained of persisting pain and numbness in the wrist. Mild edema of the wrist advanced to cellulitis of the hand and ultimately involved half of the forearm. The inflammation subsided with conservative treatment two weeks after the injection. However, the pain persisted and after three weeks a thenar mass just above the wrist, when palpated, produced paresthesia and pain in the fingers (Tinels' sign demonstrating a partial nervous lesion or nerve regeneration). The condition improved with conservative treatment and was entirely asymptomatic within three months.

Intra-arterial injection

A 30 year old male received 5 mg of diazepam and 50 mg of hydroxizine intravenously to control seizures. Although the seizures terminated, he complained of pain in the hand and arm in which he had received the injection. On examination he had some discoloration and paresthesia of the second to fifth fingers and swell-

ing of the forearm in the distribution of the ulnar artery. The condition improved slowly but eventually he developed dry gangrene of the distal phalanges of the affected hand, requiring amputation.

A 63 year old female received 30 mg of diazepam intravenously. There was difficulty on injection, and several sites were attempted before finally utilizing a vein on the radial dorsum of the left hand. No extravasation was noted but immediately following termination of the procedure it was noted that the hand had swollen on the radial aspect including the thumb and index finger. By the following day there was swelling of all fingers and a haematoma was present on the palm from the base of the thumb to the mid finger. Cold soaks were used and corticosteroids administered. Three to four days later there was less pain but eventually dry gangrene of the tips of the thumb and index finger ensued. Four weeks after the procedure the distal phalanx of the thumb and most of the index finger were amputated.

Discussion

A review of the literature suggests that the incidence of phlebitis and thrombophlebitis following an intravenous injection of diazepam is relatively low. Many clinical studies make no mention of thrombophlebitis occurring, while those studies which do report thrombophlebitis typically reported an incidence of up to 16 per cent.[2] Langdon,[3] suspicious that many cases went unnoticed, completed a more detailed study, showing an incidence of seven per cent following injection of diazepam alone. As demonstrated by Figure 1, inspection of the site of injection should be carried out at least four or five days following venepuncture to ensure that thrombophlebitis has not occurred.

The increased incidence in females over males may indeed be due to greater concern or observation by the female patient or because females will generally have smaller veins.

The lack of correlation between thrombophlebitis and either dosage administered or pain on injection is consistent with the findings of Langdon who also noted no correlation with the gauge of needle used. It is difficult, therefore, to predict the occurrence of thrombophlebitis, and each patient receiving intravenous diazepam should be warned to report any pain at the site of injection during the following week.

Conservative treatment of thrombophlebitis would appear to be sufficient in most cases although where the thrombus is extensive, hospitalization with intravenous heparinization has proven effective. A case of pulmonary embolism following thrombus formation in the cubital fossa has been reported, which emphasizes the importance of detecting and following the course of any thrombus formation.[4]

Phlebitis alone without thrombus formation is rarely described, and the differentiation of this condition from thrombophlebitis is not always clear from either these reports or from the literature. They are similar clinically in that the presence of pain during injection does not correlate to their development and both conditions are found several days after injection. The most effective form of treatment for phlebitis is unclear and perhaps the application of cold packs in the first 24 hours, followed by moist heat packs for several days will suffice in most cases.

The cases of neuropathy described are rare. Of the two reported here, one is of dubious origin while the history of the other suggests extravascular injection.

In the two cases of intra-arterial injection the circumstances were abnormal. In one case, the patient was undergoing convulsions during venepuncture while in the other there was difficulty in selecting a vein. The latter case may have been due to either direct injection into a radial artery or to a venous-arterial shunt. Other cases of accidental intra-arterial diazepam injection described in the literature are in young children,[5–7] while one case of intentional intra-arterial injection in the umbilical artery is reported.[5] All these cases led to severe reactions with two requiring amputations. The subject of intra-arterial injection has been widely discussed with regard to drugs including diazepam[8–11]. The most common symptom is severe pain radiating down the arm or into the hand accompanied by blanching of the extremity. This is to be distinguished from the low grade burning pain running up the arm, which is common with diazepam, and from localized pain, which is accompanied by swelling of tissues and is indicative of extravascular injection. The pain is followed by cyanotic edema of the affected limb or hand over the following 24 hours. The condition may then progress to gangrene, dependant on the degree of intra-arterial thrombosis. Most cases reported involve the intravenous barbiturates and it is possible that these general anaesthetic techniques may mask symptoms of intra-arterial injection. The results with barbiturates can be greatly reduced by diluting the drug, but the manufacturers of diazepam direct that it should not be diluted or mixed with a parental solution.

Treatment

The immediate treatment of intra-arterial injection is the injection of several millilitres of 1-2 per cent procaine *through the same needle* used for administering the diazepam. Should this needle be removed, the artery, which by now will be in spasm, will be difficult

"Although diazepam has a high therapeutic index, the irritant properties of the drug and its carrier solution can lead to local pathology."

to find. The procaine will act as a vasodilator in addition to giving some relief from the pain. Further treatment consists of elevating the limb to the level of the heart, immediate heparinization with 10,000 units of heparin followed by 5,000 units every six hours, sympathetic blocks, arteriography, thrombectomy and eventually amputation of gangrenous areas if necessary.

Cause

The underlying cause of all these adverse local reactions is the irritant properties of the diazepam solution rather than its pH (6.2-6.8). It was suggested by Jusko et.al.[12] that the irritant might be the precipitated lipid-soluble diazepam. Knill and Evans[13] injected diazepam and other lipid soluble drugs into the artery of the rabbits ear and found progressive tissue swelling and edema leading eventually to vascular occlusion and thrombosis. It was concluded that diazepam had a membrolytic action on the endothelial tissue and therefore cast doubt on the effectiveness of steroids or anticoagulants as treatment for intra-arterial injection. Since diazepam showed a much greater incidence of thrombophlebitis than lorazepam, while both have similar carrier solutions, Graham et.al.[2] also suggested that the diazepam solute is an irritant.

On the assumption that the solvent of diazepam solution was the irritating factor, Siebke et al[14] substituted the glycoferol, alcohol and benzoic acid with cremophor E.L. They found that both solutions often produced pain on injection and that there is little clinical difference between the two groups of patients in the first five days following injection. After one month, however, 29 per cent of those receiving the conventional diazepam complained of tenderness at the site of injection, compared to 10 per cent in the new solvent group. Earlier, Graham et al[15] also demonstrated that injection of the diazepam carrier and diluted diazepam produced similar vascular damage to diazepam undiluted.

The exception to the above findings is the study of Doppman et al[16] who injected diazepam solution into the renal and mesenteric arteries of dogs, followed by flushing the arteries with 5 per cent glucose and water. On sacrificing the animals they found no evidence of vascular or parenchymal damage. Dalen et al[17] has also injected diazepam solution directly into the pulmonary arteries of 15 patients undergoing cardiac catheterisation without reporting adverse effect. This could be due to the injection being more similar to an intravenous than an intra-arterial injection. Other studies using intra-arterial injection of diazepam in animals, reported no vascular damage but this was not specifically investigated.

Prevention

The majority of evidence, however, supports the premise that phlebitis, thrombophlebitis, neuropathies and arterial damage can all be caused by the irritant diazepam and its solvent. These adverse reactions may be limited by:

i) Selection of veins at sites remote from arteries e.g., lateral aspect of the cubital fossa.
ii) Selection of large veins.
iii) Giving a small initial test dose to monitor the patients reaction.
iv) Continually inspecting the site of injection for any swelling suggesting extravascular injection.
v) Flushing the vein with saline following injection.
vi) Diluting the diazepam solution.

In respect to flushing the vein, Langdon[18] showed a drop in the incidence of thrombophlebitis from seven per cent with diazepam given along to 2.2 per cent when flushed with a 150-250 ml of saline. Graham et al[16] also demonstrated a reduction in thrombophlebitis from 16 to 3 per cent when 10 mg of diazepam was diluted from 2 ml to 20 ml. Clinically, this technique does not appear to differ from the reaction to diazepam given directly.

Conclusion

Although diazepam has a high therapeutic index, the irritant properties of the drug and its carrier solution can lead to local pathology. Dentists using this increasingly popular modality of anxiety control should be aware of these hazards and adopt techniques which will reduce their incidence. For dental outpatients, a one week post-injection follow-up examination should be routinely adopted to monitor the development of any problems.

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Winning British student wins trip to 1979 ADA convention in Dallas

WALES — The second United Kingdom Student Clinician Program was held recently in conjunction with the British Dental Association's 1979 Annual Conference in Cardiff, Wales.

This year's program for British students marks the second year the British Dental Association has conducted the clinics. Six United Kingdom dental schools were represented and their student clinicians received an expense-paid trip to Cardiff to participate.

The program was sponsored by Dentsply International — A D International Ltd.

Under the definition established by the British Dental Association, a table clinic is a table-top demonstration of a technique or procedure concerned with some phase of research, diagnosis or treatment as related to the profession of dentistry. Students participated in two categories: Clinical Applications and Techniques and, Basic Science and Research.

Mr. Ian Mascall of the University of Glasgow was chosen winner in the Clinical Applications and Technique Category for his clinic, "Impressions of the lower denture space." Miss Juliana Henking from The Queen's University in Belfast was the winner in the Basic Science and Research Category for her clinic, "The teeth of newts."

Mr. Mascall received a cash award of £200 and Miss Henking has been invited as an observer to attend the 120th Annual Session of the American Dental Association Annual Meeting in Dallas, Texas this October.

Juliana Henking was the winner in the Basic Science and Research Category for her clinic titled "The teeth of newts." Miss Henking represented The Queen's University in Belfast in the recent United Kingdom Student Clinician Program held in conjunction with the British Dental Association's 1979 Annual Conference.

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Le cas suivant décrit une dépression inusitée du nombre des neutrophiles à la suite d'un traitement à la pénicilline par voie orale. On discute ensuite le diagnostic différentiel de gingivite aiguë d'après les changements hématologiques.

Un cas de neutropénie secondaire à la pénicilline

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Il est peu fréquent que la pénicilline prise par voie orale produise des effets négatifs ou des manifestations hématologiques. On rapporte quelques cas d'anémie hémolitique[1-3] et de leucopénie suivant des administrations parentérales massives. La leucopénie est définie comme le résultat d'une destruction immunologique des globules blancs dans la circulation périphérique, résultant, règle générale, en une agranulocytose.

L'agranulocytose, ou granulocytopénie, atteint plus fréquemment la femme que l'homme et produit une baisse de la résistance à l'infection qui peut ultimement amener la mort dans les cas extrêmes. Le patient se plaint de faiblesse et de malaise généralisé, accompagnés d'une légère mais persistante élévation de température. Localement, il y a ulcération des tissus de la bouche et du pharynx, lymphadénopathie et le patient a de la difficulté à avaler. Il n'est pas rare de trouver aussi une sévère périodontite aiguë et nécrosante.

Ces signes cliniques ne sont pas spécifiques en soi et ressemblent étrangement à ceux de la gingivostomatite ulcérative nécrosante. Même la leucémie peut se manifester de cette façon, particulièrement dans sa forme granulocytaire aiguë. La présente étude de cas démontre l'importance d'une évaluation hématologique pour tout patient présentant de tels symptomes et ne répondant pas à la thérapie usuelle.

RAPPORT DE CAS

Une femme de 34 ans est référée au département dentaire de l'hôpital Mont Sinai avec un problème d'enflure persistante et douloureuse des gencives. À peu près un mois auparavant, elle avait reçu un traitement d'endodontie pour une prémolaire inférieure droite. Deux semaines plus tard, une enflure étant apparue au buccal de cette même dent, la patiente fut référée à un chirurgien buccal qui dut faire l'extraction. Enfin, quatre jours après, elle se retrouvait avec une douleur aiguë au niveau de toutes les dents inférieures du côté droit et une enflure généralisée de la gencive. On lui prescrivit alors de la pénicilline, ce qui n'améliora aucunement son état, la douleur et l'enflure allant même en augmentant. À son arrivée à la clinique, la patiente prenait la pénicilline depuis deux semaines et avait développé une fièvre persistante, avait mal dans toute la bouche et éprouvait beaucoup de difficulté à manger et à dormir.

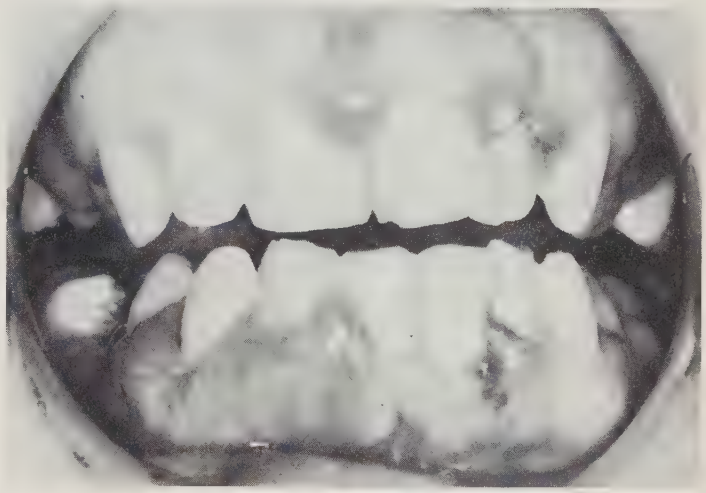

Fig 1. La gencive labiale au moment de l'admission à l'hôpital: enflée et érythémateuse, avec une pustule au buccal de la 22 et le pus drainant entre 31 et 41.

À l'examen, en plus de son apparence faible et léthargique, la patiente présentait une gencive oedémateuse et érythémateuse (Fig. 1 et 2). Les endroits les plus atteints étaient le buccal des antérieures inférieures et le lingual des molaires inférieures du côté gauche où la gencive et le périodonte recélaient du pus. Des deux côtés, les ganglions lymphatiques pouvaient être palpés dans les espaces sous-maxillaires et dans le cou. La pression sanguine était à 115/80 avec un rythme cardiaque de 110/minute et une température buccale de 38° C.

La formule sanguine donna un décompte de 6,000 pour les globules blancs avec 37 pour cent de leucocytes

Fig 2. La gencive au ligual des inférieures était molle et enflée et il était aisé d'en extraire du pus.

polymorphonucléaires et 26 pour cent de cellules jeunes.* Le taux de sédimentation était à 60 mm/h.** Le reste de la formule était normale et le test des anticorps hétérophiles n'indiquait rien de spécial.

Le lendemain, l'état de la patiente s'étant encore aggravé, elle dut être hospitalisée. À ce moment, le relevé des globules blancs donnait 4,300 dont 30 pour cent de leucocytes polymorphonucléaires et 24 pour cent de formes jeunes. Le taux de sédimentation des érytrocytes était à 70 et la température à 38.2° C. Une analyse d'urine donna 2+ de protéines .

À l'hôpital, on cessa les antibiotiques et la patiente ne reçut que du propxyphène pour soulager la douleur. À cause de la protéinurie, on redouta une infection des voies urinaires mais la pyélographie endo-veineuse était normale sauf pour un rein droit ptosique. L'état de la patiente ne cessa de s'améliorer après l'annulation de la pénicilline; elle se sentait beaucoup mieux subjectivement et l'enflure et l'inflammation de ses gencives étaient considérablement réduites. Au niveau des globules blancs, leur nombre avait augmenté de même que la proportion de polymorphonucléaires (Fig 3). Un prélèvement effectué après cinq jours d'hospitalisation montrait une moelle en état de réaction ou de récupération. La phosphatase alcaline des neutrophiles périphériques était bien au-dessus de la normale, indiquant une activité fonctionnelle. Après cinq jours, la température était normale et les globules blancs étaient à 8,600 avec 66 pour cent de leucocytes polymorphonucléaires et sept pour cent de cellules jeunes.

* Le compte normal pour les globules blancs est de 4,000 à 11,000 par mm. cu. avec 50-70 pour cent de leucocytes polymorphonucléaires et 0-5 pour cent de cellules jeunes (Band Cells).

**Chez la femme, le taux de sédimentation des érytrocytes est normalement entre 2 et 10. (Méthode Westergren).

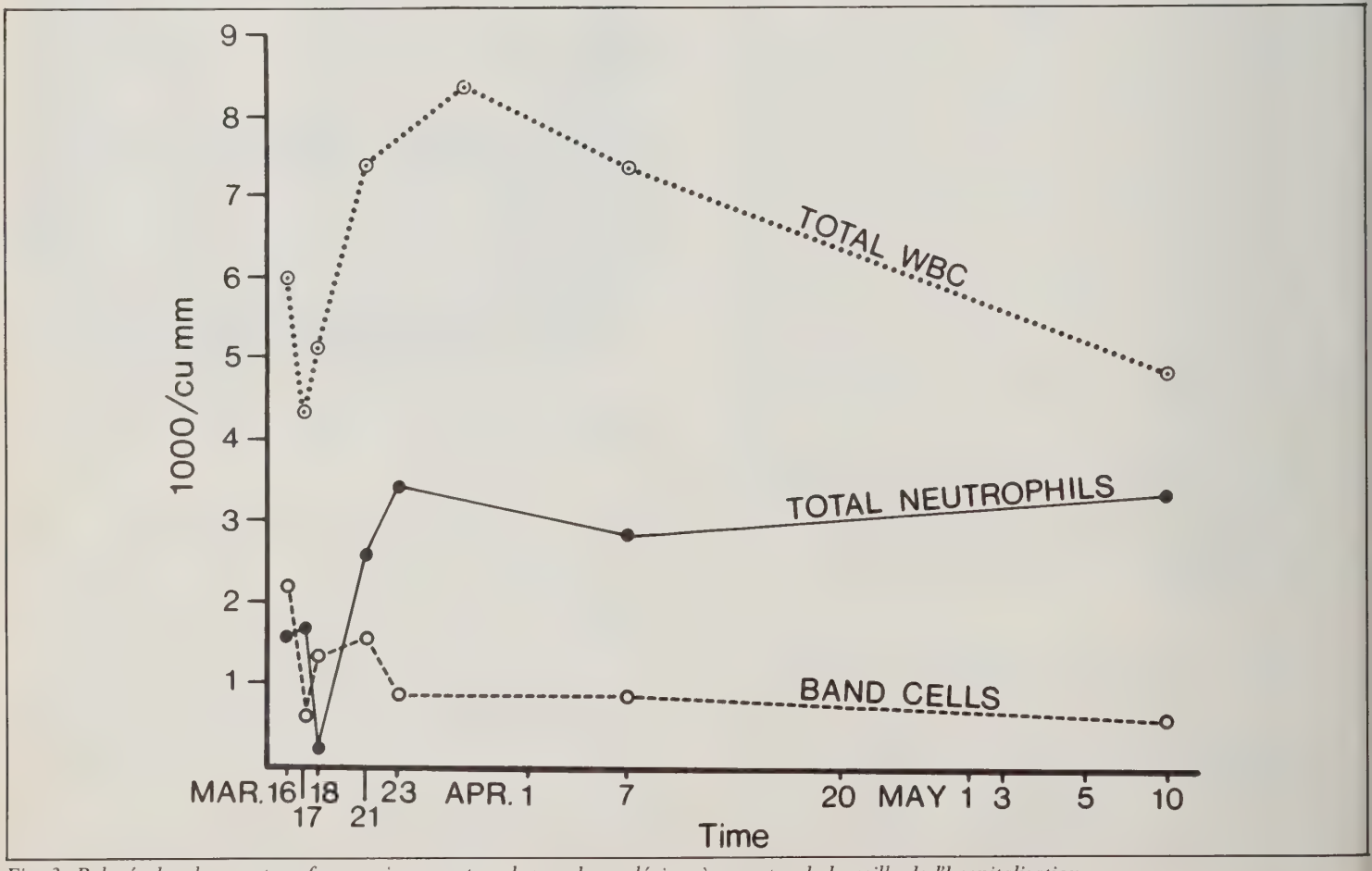

Fig 3. Relevé des leucocytes, formes jeunes et polymorphonucléaires à compter de la veille de l'hospitalisation.

Après une prophylaxie buccale conventionnelle, la patiente fut renvoyée avec une ordonnance de Céphalosporine, 250 mg q.i.d. pour prévenir une infection secondaire.

Depuis lors, la patiente a été suivie à la clinique dentaire et au département de médecine familiale. Sa bouche et gencive se sont améliorées de façon remarquable sans récidive d'enflure ou de malaise. Sa formule sanguine demeure toujours normale après deux mois d'observation. Elle est toujours affligée d'une périodontite avancée qui devra bien sûr être traitée mais il n'y a eu à date aucune exacerbation.

DISCUSSION

Dans le cas présent, on doit considérer quatre diagnostics possibles: (1) gingivostomatite ulcérative nécrosante aigue; (2) mononucléose infectieuse; (3) leucémie et (4) neutropénie secondaire à la pénicilline.

Avec la gingivostomatite ulcérative nécrosante, on s'attend à une leucocytose, et plus spécifiquement, une neutrophilie; de plus, la papille aurait semblé coupée et la rémission de la patiente à l'arrêt des antibiotiques eut été difficile à expliquer. La mononucléose infectieuse peut ne présenter qu'une fièvre et un malaise général, mais elle est plutôt accompagnée de maux de gorge et, presque inévitablement, d'une atypie lymphocytaire caractéristique. Les changements sérologiques se manifestent parfois tard mais sont généralement significatifs. Dans ce cas ci, l'atypie cellulaire n'était qu'occasionnelle et le test des anticorps hétérophiles était négatif.

La neutropénie associée à une atypie cellulaire laisse entrevoir la possibilité d'une leucémie, mais il n'y avait ici aucune blastose et l'élévation de la phosphatase alcaline des neutrophiles indiquait un état de stress — dû à l'infection — sans atteindre les valeurs associées à la leucémie. L'activité de la moelle osseuse reflétait la regénération et non la malignité, tel que le démontre le retour à la normale en périphérie.

La dernière possibilité, la neutropénie subséquente à la pénicilline, correspond mieux à la réalité clinique de notre cas. L'état de la patiente n'a cessé de se détériorer tout au long du traitement à la pénicilline pour s'améliorer aussitôt l'arrêt de la médication. L'altération de la formule sanguine et l'hyperactivité de la moelle sont parfaitement compatibles avec ce diagnostic. Dans une neutropénie classique, on aurait pu s'attendre à un nombre de neutrophiles beaucoup plus bas, tel qu'on le rapporte dans d'autres cas similaires; il faut cependant noter que dans les autres cas rapportés, la pénicilline avait été administrée à hautes doses et par voie parentérale, en comparaison avec les faibles doses prises ici oralement.

En plus de découvrir un rare cas de réaction adverse à la pénicilline, nous avons encore une fois réalisé l'importance d'évaluer en profondeur tout cas, même simple en apparence, mais qui répond mal ou pas du tout au traitement. L'évaluation hématologique peut s'avérer être un outil très précieux dans de telles circonstances.

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Psychothérapies des maladies psychosomatiques telle que la dysfonction temporo-mandibulaire douloureuse non-organique chez les adolescents

dernière partie

par Lise Morin

Avant de terminer cette partie, nous aimerions rapporter une expérience de psychothérapie de groupe menée par Ilona Demosak-Kelen et Szadacs[66] chez un groupe d'adolescents atteints de maladie psychosomatiques par l'utilisation du training autogène et de la thérapie verbale. Ainsi, ces chercheurs ont tenté de vérifier l'effet de l'emploi simultané du training autogène et de la thérapie verbale chez un groupe d'adolescents présentant des maladies pscyhosomatiques.

Le groupe comprenait deux garçons et quatre filles de même niveau socio-économique et intellectuel. Chacun des participants avait subi un examen somatique et psychologique au préalable qui a été contrôle à plusieurs reprises au cours de la thérapie. Les séances de thérapie étaient dirigées par un couple de thérapeutes dont une femme psychiatre pour les exercices de relaxation et un homme psychologue pour la thérapie verbale. Après une première séance d'information sur le déroulement des rencontres et sur les buts poursuivis dans le traitement, chaque séance subséquente était divisée en deux parties: la première partie consistait dans l'apprentissage des phases du training autogène Schultz alors que la seconde partie portait sur un échange verbal à partir d'un thème libre.

Après les premiers exercices de relaxation, Ilona Demosak-Kelen et Szakacs[66] obtinrent de très bons résultats. Ils constatèrent que la relaxation pratiquée en groupe faisait naître une prise de conscience des phénomènes communs de groupe, qui autrement exigerait de nombreuses séances de psychothérapie de groupe. Selon eux, les entretiens sur l'expérience de relaxation auraient comme effet de multiplier les interactions entre les membres du groupe. Mais après quelques séances, ils notèrent une baisse importante dans la spontanéité des échanges verbaux et dans la quantité d'informations apportées. Selon eux, cela peut s'expliquer par le fait qu'après un certain temps, l'effet positif de la relaxation interférerait avec le dynanisme verbal du groupe et par conséquent que la détente de l'organisme procurée par la relaxation ne serait pas favorable à la tension nécessaire pour la dynamique de groupe. Ilona Demosak-Kelen et Szakacs[66] proposent donc de ne pas faire intervenir la dynamique de groupe au cours des séances de relaxation, mais plutôt de profiter de la réduction des tensions psychologiques à la fin de la série des rencontres pour introduire la psychothérapie verbale afin d'aider les adolescents à verbaliser à long terme sur leurs difficultés personnelles.

Quoiqu'il en soit, malgré les lacunes d'ordre méthodologique que comporte cette expérience, les résultats obtenus mettent en évidence l'importance et l'efficacité de l'utilisation d'une technique de relaxation en groupe tel que le training autogène au début du traitement clinique chez des adolescents souffrant de maladies psychosomatiques. Dans ce cas, le training autogène servirait de méthode préparatoire à toute forme de psychothérapie verbale d'inspiration analytique avec des sujets psychosomatiques en vue de les aider à une prise de conscience progressive de leurs effets et de leur agressivité tout en favorisant la détente et la sensibilisation aux tensions physiques et psychologiques ressenties à travers leur organisme. D'autre part, cela souligne l'importance que les verbalisations du psychothérapeute au cours des séances de relaxation en groupe avec des adolescents psychosomatiques soient centrées surtout sur les expériences de tension ou de détente corporelle et psychologique telles que vécues par chacun des membres du groupe en évitant toute interprétation analytique sur le conflit psychique sous-jacent dont les effets seraient susceptibles de briser la relation de confiance et de réassurance établie avec le thérapeute et de faire resurgir les défenses somatiques. Il apparaît donc plus adéquat de réserver ces interprétations au cours d'entrevues individuelles de nature supportive et structurante avec l'adolescent lorsque ce dernier semble prêt à accepter l'émergence de ses effets et de son agressivité et motivé dans l'exploration de son propre conflit psychique.

Dans la même perspective, l'expérience réalisée par Ilona Demesak-Kelen et Szakacs[66] pourrait donc être tentée à nouveau avec un groupe d'adolescents souffrant du syndrome de la dysfonction temporo-mandibulaire tout en y apportant les modifications mentionnées précédemment et pourrait ainsi servir comme point de départ pour l'élaboration d'un plan de traitement psychothérapique avec les adolescents atteints de ce syndrome.

Résumé et conclusion

Les différents aspects présentés dans ce travail nous ont permis d'aborder le syndrome de la dysfonction temporo-mandibulaire douloureuse non-organique en tant que maladie psychosomatique et d'envisager les possibilités de traitement clinique chez les adolescents souffrant de ce syndrome. Une brève revue des écrits parus dans la littérature à ce sujet ont mis en évidence

la pauvreté des recherches expérimentales et cliniques portant particulièrement sur les techniques psychothérapiques à utiliser avec cette catégorie de patients. Ceci peut s'expliquer en raison de cette nouvelle perspective d'approche dans le domaine clinique du syndrome de la dysfonction temporo-mandibulaire en tant que maladie psychosomatique et des tentatives actuelles orientées vers l'exploration des éléments diagnostiques de ce syndrome plutôt que vers l'élaboration de techniques thérapeutiques appropriées pour le traitement clinique de ces patients. De plus, l'absence d'étude portant sur des échantillons d'enfants et d'adolescents a suscité de nombreuses interrogations quant à l'étiologie et aux éléments dynamiques de ce syndrome et par conséquent des aspects cliniques à considérer dans l'emploi de techniques psychothérapiques en regard de l'âge du patient présentant cette pathologie.

Par ailleurs, nous avons envisagé le traitement clinique des maladies psychosomatiques dont le but premier serait de faire diminuer la tension physique et psychologique de ces sujets en vue de permettre l'expression des effets et de l'agressivité et par conséquent, de rétablir la connexion entre la pensée et le corps, c'est-à-dire entre les symptômes physiques et leur signification psychologique. Toutefois, en raison du fonctionnement mental au niveau opératoire, de l'inhibition de la vie fantasmatique et relationnelle et des risques de régression psychiatrique de ces sujets, l'emploi de la cure-type de psychothérapie psychanalytique s'est révélée contre-indiquée au début du traitement clinique des malades psychosomatiques.

Par la suite, en faisant le relevé des différentes méthodes de traitement clinique des maladies psychosomatiques en général, l'utilisation des techniques de relaxation, en particulier, le training autogène de Schultz[50], sont apparues le plus fortement recommandées au début des séances de traitement avec ces patients. Il a également été conseillé d'associer cette technique à une autre forme de psychothérapie d'inspiration psychanalyste en vue d'assurer au sujet psychosomatique le support nécessaire pour l'aider à une prise de conscience progressive du lien qui existe entre ses symptômes physiques et le conflit psychologique sous-jacent et en vue de prévenir les risques possibles de la formation de d'autres symptômes ou d'une régression marquée à un niveau prégénital. Toutefois, en comparant la méthode et les effets du training autogène à d'autres formes de psychothérapie d'inspiration analytique, l'accent a surtout été mis sur l'importance à accorder dans l'établissement d'une relation positive entre le thérapeute et son patient psychosomatique comme condition essentielle à maintenir tout au long du traitement clinique.

D'autre part, les quelques considérations apportées par les auteurs sur la psychothérapie avec les adolescents psychosomatiques nous ont éclairés sur l'utilité et l'efficacité de la pratique en groupe de la relaxation par le training autogène dans le but de parvenir plus rapidement à la détente physique et psychologique tout en favorisant les processus d'identification et d'autonomie chez l'adolescent. Une expérience menée dans ce sens par Ilona Demosak-Kelen et Szakacs[66] auprès d'un groupe d'adolescents psychosomatiques nous a permis d'entrevoir les possibilités et les limites éventuelles d'un plan de traitement psychothérapique avec les adolescents souffrant du syndrome de la dysfonction temporo-mandibulaire non-organique.

En conclusion, la plupart des auteurs font ressortir l'importance de la relation que le thérapeute établit avec l'adolescent comme point central du traitement psychothérapique, cette relation devant reposer sur des bases solides de confiance, de réassurance et de respect de la personnalité de l'adolescent et tant que tel et de son propre processus de changement s'opérant graduellement au cours du traitement clinique.

Néanmoins, tout un travail de recherches expérimentales et d'observations cliniques restent à effectuer auprès des adolescents souffrant du syndrome de la dysfonction temporo-mandibulaire non-organique en vue de vérifier les hypothèses émises au cours de cette étude sur un schéma de traitement psychothérapique possible avec cette catégorie de patients et d'y apporter éventuellement les modifications nécessaires.

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Lise Morin était une étudiante à l'Université de Montréal.

GUIDE À L'INTENTION DES COLLABORATEURS

La rédactrice en chef du Journal de l'Association Dentaire Canadienne accueillerait avec plaisir des articles inédits, des analyses critiques des documents relatifs à des progrès en dentisterie et des rapports cliniques. Il est entendu que les articles ou autres écrits présentés pour fins de publication n'auront pas été soumis à d'autres publications.

ARTICLES SCIENTIFIQUES: longueur maximale de 2,500 mots, avec illustrations, diagrammes, photographies, tableaux ou graphiques. Une vingtaine de références constituent une moyenne acceptable.

RAPPORTS MAJEURS: il s'agit d'écrits plus considérables, portant sur le diagnostic ou le traitement de maladies dentaires, sur des études en éducation, des recherches cliniques ou des travaux de laboratoire, ou encore sur d'autres études poussées relatives à la dentisterie ou à des domaines connexes.

RAPPORTS CLINIQUES: brefs comptes rendus (jusqu'à 1,500 mots), études de cas et observations cliniques. Nombre limité de références et d'illustrations.

OPINIONS: des opinions bien appuyées (800 mots ou moins) seront publiées à la discrétion de la rédactrice en chef.

Le calcul des mots se fait en se basant sur environ 250 mots par page de 8½ sur 11, double interligne.

MANUSCRITS: prière d'envoyer trois exemplaires (l'original et deux copies) à la rédactrice en chef, Journal de l'Association Dentaire Canadienne, 1815 promenade Alta Vista, Ottawa, Ontario, K1G 3Y6.

Une lettre d'envoi et un résumé de l'écrit doivent accompagner chaque document soumis. L'auteur doit également indiquer son adresse postale complète.

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Les textes doivent être dactylographiés à double interligne sur du papier de 8½ sur 11, d'un seul côté de la feuille. Un résumé doit accompagner chaque manuscrit.

Les **TITRES DES ARTICLES** doivent être descriptifs, mais brefs et faciles à cataloguer.

Les **RÉFÉRENCES** doivent être inscrites par des numéros consécutifs dans les passages appropriés. Les références de revues doivent mentionner le nom de l'auteur, le titre de l'article, le nom abrégé de la revue, le numéro de volume, le numéro de la première et de la dernière page de l'article, et l'année de publication:

1. Hechter, F.J. Symmetry and dental arch form of orthodontically treated patients, JCDA 44: 173-184, 1978.

Quant aux livres, les références doivent indiquer le nom de l'auteur, le titre du livre, la ville et le nom de la maison d'édition, et l'année de publication:

2. Kilpatrick, H.C. Work Simplication in dentistry, ed. 2. Philadelphia, Saunders, 1964.

ILLUSTRATIONS: elles doivent être de haute qualité. Seuls des dessins, des diagrammes et des graphiques de qualité professionnelle doivent accompagner les manuscrits. Les diapositives ou négatifs de couleur ne peuvent être acceptés. Prière d'envoyer trois (3) exemplaires des photos (noir et blanc, épreuves glacées de 3" sur 5"), des dessins, des radiogrammes, des diagrammes et des graphiques. Au moyen d'un crayon à mine grasse SEULEMENT, inscrire délicatement au verso le nom de l'auteur et le numéro de l'illustration. Indiquer également le "haut" de chaque illustration.

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Des tirés à part sont disponibles. Des bons de commande de tirés à part seront envoyés à tout auteur soumettant un manuscrit.

Elizabeth McKee, rédactrice en chef
Journal de l'Association Dentaire Canadienne
1815 promenade Alta Vista
Ottawa, Ontario
K1G 3Y6

ANNOUNCEMENTS

We urge readers to confirm meeting dates with the contact listed with each announcement.

CANADIAN DENTAL ASSOCIATION, 1979 National Convention, Quebec City, September 9-12. Contact: Dr. Clément Caron, Convention Chairman, 1979 CDA National Convention, 1575 St. Louis Road, Sillery, Quebec G1S 1G4. Telephone: (418) 527-8969 or 687-5271.

ASSOCIATION DENTAIRE CANADIENNE, Congrès national 1979, Québec. 9-12 septembre. Pour renseignements: Dr. Clément Caron, directeur général. congrès 1979 de l'ADC, 1575 chemin St-Louis, Sillery. Québec G1S 1G4. Téléphone: (418) 527-8969 ou 687-5271.

CANADIAN MEETINGS

JULY

7TH INTERNATIONAL SYMPOSIUM ON DENTAL HYGIENE, Vancouver, British Columbia, July 25-28, 1979. Contact: 7th International Symposium on Dental Hygiene, c/o Venue West Ltd., 1704-1200 Alberni Street, Vancouver, British Columbia V6E 1A6.

UNIVERSITY OF CONNECTICUT SCHOOL OF DENTAL MEDICINE, Continuing Dental Education Course on Periodontics and Full Mouth Rehabilitation, Farmington, Connecticut, U.S.A., July 30 — August 2, 1979. Contact: Dr. Harold Gaynor, Associate Dean, Lewis Fox Division of Continuing Education, University of Connecticut School of Dental Medicine, Farmington, CT 06032, U.S.A.

AUGUST

First Convention of the Caribbean Atlantic Regional Dental Association, Anchorage Hotel, Antigua, West Indies, August 3,4,5, 1979. Contact: Dr. Norman Athill, P.O. Box 870, St. John's, Antigua, West Indies.

SEPTEMBER

CANADIAN ASSOCIATION OF ORTHODONTISTS, 31ST ANNUAL MEETING AND CONVENTION, Hotel Frontenac, Quebec City, September 8-9, 1979. Contact: Dr. R. Faith, 605-1538 Sherbrooke Street West, Montreal, Quebec, or Dr. J.J. Schachter, Box 952, Saskatoon, Saskatchewan S7K 3M4.

CANADIAN ACADEMY OF ENDODONTICS, 1979 Annual Meeting, Quebec City, Quebec, September 8-9, 1979. Contact: Dr. Jean Claude Giguere, 1575 chemin St. Louis N., Sillery, Quebec G1S 1G4.

CANADIAN ASSOCIATION OF ORAL AND MAXILLOFACIAL SURGEONS ANNUAL MEETING, Quebec City, September 8-11, 1979. Theme: Maxillofacial Trauma. Contact: Dr. Victor Goodyer, 565 St. Jean, Quebec City, Quebec G1R 1P5.

CANADIAN ACADEMY OF ORAL RADIOLOGY ANNUAL MEETING, Quebec City, September 9, 1979. Contact: Dr. A. Ruprecht, Department of Diagnosis and Oral Radiology, University of Saskatchewan. Saskatoon, Saskatchewan S7N 0W0.

ROYAL COLLEGE OF DENTISTS OF CANADA SYMPOSIUM, Chateau Frontenac Hotel. Quebec City, September 9-10, 1979. Theme: "1979 — The International Year of the Child: Dental Perspectives." Speakers are from Denmark, Switzerland, the United States and Canada. Contact: Dr. C.L.B. Lavelle, Program Chairman, RCDC Symposium. Faculty of Dentisry, University of Manitoba, Winnipeg, Manitoba R3E 0W3.

39TH ANNUAL CONVENTION OF THE NORTHERN ONTARIO DENTAL ASSOCIATION, North Bay, Ontario, September 14 — 16, 1979. Contact: Dr. Yosh Kamachi, secretary-treasurer, Northern Ontario Dental Association, 161 Main Street East, North Bay, Ontario P1B 1A9.

OCTOBER

CANADIAN SOCIETY OF FORENSIC SCIENCE ANNUAL MEETING, Ritz Carlton Hotel, Montreal. October 15-19, 1979. Two-day symposium on Dentistry and the Law will be held the 15th — 16th. Contact: Dr. R.B.J. Dorion, president, Canadian Society of Forensic Science. Suite 710D, Sun Life Building, Montreal, Quebec H3B 2V6.

NOVEMBER

TORONTO ACADEMY OF DENTISTRY Annual Winter Clinic, Royal York Hotel, Toronto, November 22, 1979. Contact: Academy of Dentistry, 234 St. George Street, Toronto, Ontario, M5R 2P2.

INTERNATIONAL MEETINGS

JULY

SECOND ASIAN PACIFIC CONGRESS IN ANXIETY AND PAIN CONTROL IN DENTISTRY, Honolulu, Hawaii, July 2-5, 1979. Contact: Australian Society for the Advancement of Anaesthesia and Sedation in Dentistry, Suite 904. Hooker House, 175 Pitt Street. Sydney, New South Wales 2000.

ASSOCIATION OF AMERICAN DENTISTS, Kansas City. KS, U.S.A., July 13-14, 1979. Contact: Dr. Melvin T. Munn. 10511 Wyatt Street, Dallas. TX 75218, U.S.A.

SOCIETY FOR THE ADVANCEMENT OF ANAESTHESIA IN DENTISTRY, Second International Congress on Modern Pain Control (Sedation, Anaesthesia and Analgesia in Dentistry), Royal Lancaster Hotel, London, England. July 13-16. 1979. Contact: secretary, SAAD '79, 53 Wimpole Street, London W1M 7DF, England.

FOURTH DENTAL CONGRESS of Rio Grande do Sul and the 14th Brazilian Dental Congress, Porto Alegre, Rio Grande Do Sul, Brazil. July 14-20, 1979. Contact: Luis Alberto A. Kramer, Fourth Congresso Odontologico Rio Grandense. Caixa Postal 1118-90000, Porto Alegre RS. Brazil.

INTERNATIONAL ASSOCIATION OF DENTISTRY FOR CHILDREN Seventh Congress, Budapest, July 19-22, 1979. Contact: Congress Bureau Motesz, H1361 Budapest, P.O. Box 32, Hungary.

IV INTERNATIONAL DENTAL CONGRESS, Rio de Janeiro, Brazil, July 21-26, 1979. Contact: professor R.S. Wilhelm, General Secretary, AV. 13 de Maio, 13-10° Andar, Rio de Janeiro, RJ, Brazil.

7TH INTERNATIONAL SYMPOSIUM ON DENTAL HYGIENE, Vancouver, British Columbia. July 25-28, 1979. For details see listing under "Canadian Meetings".

AMERICAN NATIONAL DENTIAL HYGIENISTS' ASSOCIATION, Washington, DC, U.S.A. July 29-August 3, 1979. Contact: Ms. Lynda Stall-

worth, 419 W. Queen, #7, Inglewood, CA 90301, U.S.A.

AUGUST

FIRST LATIN AMERICAN CONGRESS and the Second National Congress on Institutional Odontology, Mexico City, Mexico. August 13-17, 1979. Contact: Dr. Vincente A. Garza. President of the Organizing Committee, Unidad de Congresos. C.M.N., Avenida Cuauhtemoc. No. 330, 4th floor, Mexico 7, D.F. Mexico.

62ND ANNUAL SESSION OF THE SCANDINAVIAN ASSOCIATION FOR DENTAL RESEARCH (Scandinavian Division of IADR), Bergen. Norway. August 17-18. 1979. Contact: Dr. Tryggve Lie. School of Dentistry, University of Bergen. Arstadveien 17, N-5000 Bergen. Norway.

Oral Surgeons meet in Quebec

Dr. Norman Rowe will be the highlight speaker at the annual meeting of the Canadian Association of Oral and Maxillofacial Surgeons, September 7 to 11 this year in Quebec City.

Dr. Rowe, from England, is past president of the British Association of Oral Surgeons and of the European Association of Maxillofacial Surgeons. He is past secretary-general of the International Association of Oral Surgeons. Dr. Rowe holds Honorary Fellowships in many oral surgeons' societies around the world and has published papers in British and foreign dental journals.

At the Quebec City reunion, Dr. Rowe will speak on "Trauma and Problems in Oral and Maxillofacial Surgery." His address is divided into three sections from Sunday morning, September 9 to Monday morning, September 10.

Monday afternoon, Major Ed MacInnis, DDS, Canadian Forces Dental Services, will address the delegates. Major MacInnis, chief of Oral Maxillofacial Surgery, CFN, Halifax, graduated from the University of Toronto in 1968. He entered pre-medicine at St. Francis Xavier University in 1964.

The topic of Major MacInnis' presentation is "Trauma."

The last two days of the oral surgeons' reunion parallels the beginning of the Canadian Dental Association Annual Convention being held in Quebec City, September 9 to 12.

SEPTEMBER

INTERNATIONAL ASSOCIATION FOR ORTHODONTICS New Orleans, La., U.S.A., September 12-15, 1979. Contact: Ms. Joanna Carey, 645 N. Michigan Avenue, Suite 522, Chicago, IL 60611, U.S.A.

AMERICAN ASSOCIATION OF ORAL AND MAXILLOFACIAL SURGEONS Annual Meeting, New Orleans, La., U.S.A., September 14-18, 1979. Contact: AAOMS, 211 East Chicago Avenue, Chicago, IL 60611, U.S.A.

AMERICAN SOCIETY OF PSYCHOSOMATIC DENTISTRY AND MEDICINE, Miami, FL U.S.A., September 15-16, 1979. Contact: Dr. Leo Wollman, 2802 Mermaid Avenue. Brooklyn, NY 11224, U.S.A.

INTERNATIONAL ACADEMY OF GNATHOLOGY, Coronado, California, U.S.A., September 18-23. 1979. Contact: Dr. Charles G. Eller. 4223 Palm Avenue, La Mesa, CA 92041, U.S.A.

SIXTH INTERNATIONAL CONFERENCE ON ENDODONTICS, Philadelphia (University of Pennsylvania Centennial Scientific Symposia) U.S.A., September 21-24, 1979. Contact: Dr. W. Walter Cohen. School of Dental Medicine, 4001 Spruce Street. Philadelphia, PA 19104, U.S.A.

AMERICAN SOCIETY OF PSYCHOSOMATIC DENTISTRY AND MEDICINE, San Diego, California. U.S.A., September 25, 1979. Contact: Mr. Leo Wollman, 2802 Mermaid Avenue, Brooklyn, NY 11224, U.S.A.

38TH ANNUAL MEETING OF THE JAPAN ORTHODONTIC SOCIETY, Sapporo, Japan. September 25-27, 1979. Contact: professor Shinki Nakamura. Hokkaido University, School of

Dr Norman Rowe sera le conférencier

Le Dr Norman Rowe sera le conférencier vedette lors du congrès annuel de l'Association canadienne des spécialistes en chirurgie buccale et maxillofaciale, qui se tiendra cette année du 7 au 11 septembre, à Québec.

Le Dr Rowe a déjà occupé la présidence de l'association britannique des spécialistes en chirurgie buccale et de l'association européenne des spécialistes en chirurgie maxillofaciale. Il a également été secrétaire général de l'association internationale des spécialistes en chirurgie buccale. Enfin, le Dr Rowe a été reçu membre honoraire de plusieurs sociétés de spécialistes en chirurgie buccale, dans différents pays, et ses exposés ont été publiés dans les revues dentaires du Royaume-Uni et d'autres pays.

Au congrès de Québec, le Dr Rowe donnera une allocution intitulée "Trauma and Problems in Oral and Maxillofacial Surgery". Il fera cet exposé en trois étapes réparties du dimanche matin, 9 septembre au lundi matin, 10 septembre.

Le lundi après-midi, le major Ed MacInnis, D.D.S., du service dentaire des Forces armées canadiennes, s'adressera aux délégués. Diplômé de l'Université de Toronto, le major MacInnis est chirurgien-chef au service de chirurgie maxillofaciale de la base de Halifax. Le thème de son exposé est le "traumatisme".

Les deux dernières journées du congrès des spécialistes en chirurgie buccale coincident avec le début du congrès annuel de l'Association Dentaire Canadienne, du 9 au 12 septembre, à Québec.

ANNOUNCEMENTS

Dentistry, Nishi 7-chome, Kita 13-jo. Kita-ku, Sapporo, Japan.

ORAL-FACIAL ANOMALIES: RESEARCH AND MANAGEMENT, Philadelphia. Pa., (University of Pennsylvania Centennial Scientific Symposia) U.S.A., September 26-30, 1979. Contact: Dr. W. Walter Cohen, School of Dental Medicine, 4001 Spruce Street. Philadelphia, PA 19104, U.S.A.

NEW ORLEANS DENTAL CONFERENCE, New Orleans, La., U.S.A., September 27-30, 1979. Contact: Dr. Peter L. Glaser, 2121 N. Causeway Blvd., Suite 272, Metairie, LA 70001, U.S.A.

OCTOBER

FIRST INTERNATIONAL CONGRESS ON HORMONES AND CANCER, Rome, Italy, October 4-6, 1979. Contact: professor S. Iacobelli, Laboratori di Endocrinologia Molecoloare. Instituto de Clinica Osterica e Ginecologica, Universita Cattolica, Via Pineta Sacchetti, 644-00168 Rome, Italy.

AMERICAN ASSOCIATION OF HOSPITAL DENTISTS, Denver, Co., October 4-7, 1979. Contact: Dr. George A. Kentros, University of Alabama. School of Dentistry, 1919 Seventh Avenue South, Birmingham, AL 35294, U.S.A.

AMERICAN INSTITUTE OF ORAL BIOLOGY, Palm Springs, California, U.S.A., October 6-10. 1979. Contact: Mrs. Barbara P. Ward, P.O. Box 481, South Laguna, CA 92677, U.S.A.

NEW YORK STATE ACADEMY OF DENTAL PRACTICE ADMINISTRATION MEETING, Toronto. Ont., Can., October 12-13, 1979. Speaker: Dr. Harold Wirth of New Orleans. Contact: New York State Academy of Dental Practice Administration, 1736 Mount Hope Avenue, Rochester, NY 14620, U.S.A.

DENTAL SECTION OF THE AUSTRIAN MEDICAL PRACTITIONERS ASSOCIATION and the Austrian Technicians Society, Vienna. October 12-15, 1979. Contact: Bundesfachgruppe fur Zahn-Mund-und Kieferheikunde der Osterreichischen Arztekammer, Weinburggasse 10-12 Vienna, Austria.

AMERICAN ACADEMY OF IMPLANT DENTISTRY, Dallas, TX U.S.A., October 15-20, 1979. Contact: Mr. John P. Winiewicz, 469 Washington Street, Abington, MA 02351, U.S.A.

AMERICAN ACADEMY OF GOLD FOIL OPERATORS, Dallas, TX U.S.A., October 18-19, 1979. Contact: Dr. Jack G. Seymour, 3532 E Shields, Fresno, CA 93726, U.S.A.

AMERICAN ACADEMY OF DENTAL RADIOLOGY, Dallas, TX U.S.A., October 18-20, 1979. Contact: Dr. Wm. R. Wege, Medical College of Georgia, School of Dentistry. Dept. of Radiology, Augusta, GA 30902, U.S.A.

AMERICAN ACADEMY OF GOLD FOIL OPERATORS, Honolulu, Hawaii, October 19-20, 1979. Contact: Dr. David A. Grainger, Dept. of Operative Dentistry, Box J-415, JHMHC, College of Dentistry, University of Florida, Gainesville. FL 32610, U.S.A.

AMERICAN COLLEGE OF DENTISTS, Dallas, Tx., U.S.A. October 20, 1979. Contact: Dr. R.J. Nelsen, 7316 Wisconsin Ave., Suite 304, Bethesda, MD 20014, U.S.A.

FÉDÉRATION DENTAIRE INTERNATIONALE, 67th Annual World Dental Congress, Paris, France, October 20-26, 1979. Contact: FDI, 64 Wimpole Street, London W1M 8AL. U.K.

AMERICAN DENTAL ASSISTANTS' ASSOCIATION, Dallas, TX U.S.A., October 21-24, 1979. Contact: Ms. Patricia Cupkie, 666 Lake Shore Dr., SUITE 1130, Chicago, IL 60611, U.S.A.

AMERICAN DENTAL ASSOICATION, One Hundred and Twentieth Annual Session, Dallas, Texas. U.S.A., October 21-25, 1979. Contact: American Dental Assoication, 211 East Chicago Ave., Chicago. IL 60611, U.S.A.

ACADEMY OF DENTISTRY INTERNATIONAL, Anaheim, California, October 22-23, 1979. Contact: Dr. Albert Wasserman. 430 San Mateo Dr., Dan Mateo, CA 94401, U.S.A.

AMERICAN ACADEMY OF DENTAL GROUP PRACTICE, Dallas, TX U.S.A., October 24, 1979. Contact: Ms. Joann Junkins, 1709 Elka Lane, Madison, WI 53704, U.S.A.

AMERICAN ACADEMY OF MAXILLOFACIAL PROSTHETICS, New Orleans, La., U.S.A., October 27-31, 1979. Contact: Dr. J.W. Schweiger, V.A. Center, 1601 Kirkwood Hwy., Wilmington, DE 19805, U.S.A.

AMERICAN ACADEMY OF PERIODONTOLOGY, Seattle, WA U.S.A., October 31-November 3, 1979. Contact: Ms. Jean Pierson, 211 E. Chicago Ave., Suite 924, Chicago, IL 60611, U.S.A.

AMERICAN COLLEGE OF PROSTHODONTICS, Houston, Tx., U.S.A., October 30-November 1, 1979. Contact: Dr. Dean L. Johnson, 2708 Old Farm Lane, Edmond, OK 73034, U.S.A.

Announcements are placed free of charge in the Journal of the Canadian Dental Association. Send Announcements to: CDA Journal, 1815 Alta Vista Drive, Ottawa, Ont., Canada K1G 3Y2. Only written notices are accepted for publication.

NOVEMBER

POSTGRADUATE COURSE IN HEAD AND NECK RAIOLOGIC DIAGNOSIS: Computerized Tomography, Tomographu, Angiography, Nuclear Medicine and Ultrasound, New York City, November 2-4, 1979. Fee $150. Category 1 Approved 17 hours. Contact: Guy D. Potter, M.D., director, Dept. of Radiology, Lenox Hill Hospital, 100 East 77th Street, New York, N.Y. 11021, U.S.A. Telephone: (212) 794-4305.

IV INTERNATIONAL CONGRESS- Golden Jubilee of the Academia de Estomatologia del Peru. Third Spanish-Latin American Dental Congress, Lima, Peru. November 14-17, 1979. Contact: Dr. Antonio Pinillo Soteros. Chota 760-Lima, Peru.

30TH ANNUAL SCIENTIFIC CONGRESS of the Korean Dental Association. Guaruja. Brazil, November 25-December 2, 1979. Contact: Rua Humaita 389, Cx. Postal 2523, C.E.P., 01321 — Sao Paulo, Brazil.

SOCIETY OF ORAL PHYSIOLOGY AND OCCLUSION, New York, N.Y., U.S.A., November 26, 1979. Contact: Mr. Irving Anderman, 3 Linden Pl., Middletown, NY 10020, U.S.A.

2ND WORLD CONGRESS ON PAIN AND ANXIETY CONTROL IN DENTISTRY, New Delhi. India. November 27-29. 1979. Contact: Dr. P. Virapin, 15 avenue de Maurin, 3400 Montpellier, France.

1980

CANADIAN DENTAL ASSOCIATION, 1980 National Convention, Halifax, Nova Scotia, July 13-16, 1980. Contact: Dr. T.D. Ingham, Nova Scotia Dental Association, P.O. Box 604, Halifax, N.S. B3J 2R7.

FIRST INTERNATIONAL DENTAL

CONFERENCE, Bombay, India, January 20-24, 1980. Contact: G.B. Shankwalker, Government Dental College and Hospital, Bombay 400001. India or Jangoo D. Kapadia, Sunkersett Mansion, Nan's Chowk, Bombay 400 007, India.

AUSTRALIAN DENTAL ASSOCIATION CONVENTION, Hobart, Australia, February 16-21, 1980. Contact: H. Hammer, 130 New Town Rd., New Town, Tas 7008, Australia.

EIGHTH AUSTRALIAN ORTHODONTIC CONGRESS, Perth, Australia. March 23-29, 1980. Contact: Hon. Secretary, Australian Society of Orthodontists, 179 St. George's Tce. Perth, W.A. 6000, Australia.

SCHWEIZERISCHE ZAHNÄRZTE-GESELLSCHAFT (SSO), Interlaken, Switzerland, May, 1980. Contact: Franz Plattner, Chefredaktor des Bulletins, Ottoplatz 21, 7000 Chur, Switzerland.

BRITISH DENTAL ASSOCIATION CENTENARY MEETING, London, England, July 10-11, 1980. Contact: R.B. Allen, secretary, British Dental Association, 64 Wimpole Street, London W1M 8A1, England.

FÉDÉRATION DENTAIRE INTERNATIONALE, International Dental Show. Hamburg, Germany. August 25-September 7, 1980. Contact: M. Jean-Pierre Schweizer, sales manager. Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 309, Toronto, Ont., Can., M5H 1L9.

FÉDÉRATION DENTAIRE INTERNATIONALE, 68th Annual World Dental Congress, Hamburg, Germany, September 2-7, 1980. Contact: Dr. R. Braun, Bundesverband der Deutschen Zahnärzte, Universita-isstrasse 73, 5000 Koln 41, Germany.

THIRD NATIONAL CONVENTION AND III INTERNATIONAL CONFERENCE OF ORAL HEALTH, Lima, Peru, October 1-4, 1980. Contact: Dr. Gilberto Dominguez, Av. Benavides 264-902, Lima 18, Peru, South America.

1981 —

Fédération Dentaire Internationale, **69TH ANNUAL WORLD DENTAL CONGRESS,** Rio de Janeiro, Brazil, September 5-9, 1981.

Fédération Dentaire Internationale. **70TH ANNUAL WORLD DENTAL CONGRESS,** Vienna, Austria, October 11-16, 1982.

Fédération Dentaire Internationale, **71ST ANNUAL WORLD DENTAL CONGRESS,** Tokyo, Japan, October 1983.

Fédération Dentaire Internationale, **72ND ANNUAL WORLD DENTAL CONGRESS,** Helsinki, Finland, August/September, 1984.

Pain for divers

SCOTLAND — Underwater oil means profits to some, home heating to others and toothache to a select few.

Recent reports from Scotland indicate that North Sea divers involved in offshore oil exploration suffer excruciating tooth-related pain and blow-outs of fillings after working underwater.

According to Dr. Norman Duthie of Dundee University's Dental Prosthetics Department and a private practitioner, the problem is caused by a build-up of pressure of moving gasses in and around the teeth. Intense pain can begin at any time during the dive — when the diver is ascending, descending or even during decompression.

Although he is not yet certain, Duthie thinks changes in barometric pressure may be the cause of the painful disintegration of fillings.

British diving instructor, William Soulsby also reports having witnessed divers "doubled up in pain." According to Soulsby, air and gasses build-up in cavities that are not decompressing as quickly as the rest of the diver's body. "They may be at 40 feet and their teeth are at 50 feet."

The prescription for divers? Be good to your teeth and visit the dentist more regularly than others.

The recommendation for dentists? Insert thicker linings before filling divers' teeth and make doubly sure there are no overhanging ledges or cracks — week spots where trouble begins.

OBITUARIES

BREWER, Oswald, graduated University of Toronto, 1923 and practised dentistry in Winnipeg, Manitoba until 1940. Dr. Brewer served with the Canadian Dental Corps in two World Wars. He is a Life Member of the Manitoba Dental Association.

WHITNEY, J. Charlotte (Howes), on Saturday, May 26, 1979, the result of an automobile accident near Thamesville, Ontario. Dr. Whitney graduated from the University of Toronto in 1945 and was awarded a Diploma in Periodontology from the same school in 1949. In 1967 she earned a fellowship in the Royal College of Dentists of Canada and for a number of years was a member of the Department of Periodontology at the University of Toronto. In 1968 she became president of the American Academy of Periodontology, the first woman to hold that post. She is survived by her husband, Tom Howes and five children, David, Lyn, Lesley, Ronald and Paul Howes. Donations may be made to the Canadian Fund for Dental Education, the Metropolitan Opera Guild in New York City or the Toronto Symphony Orchestra.

CASSELS, Michael, graduated University of Toronto, 1958, died April 3, 1979. Dr. Cassels practised in Hamilton, Ontario.

BUTLER, Melville Joseph (Mel), practised in Kelowana, British Columbia. Born May 22, 1919 in Assiniboia, Saskatchewan. Died April 17, 1979. Graduated University of Toronto, 1944. Dr. Butler is survived by his wife, Lois and children Dr. William (Bill), Kip and Marcia.

LOUDEN, William Ronald (Ron), graduated University of Toronto, 1923. Born in Scotland, practised in Victoria, British Columbia until retirement in 1973. Died April 9, 1979. Survived by wife Doria.

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OFFICES AND PRACTICES

BRITISH COLUMBIA — Burnaby. Office space available in modern Burnaby dental office. Plumbing, partitioning. Part-time associateship for now, but potential partnership later. Reply to CDA Box Number 1909.

BRITISH COLUMBIA — Dawson Creek. For sale: modern, four-chair practice in north-east British Columbia. Community approx. 15,000, with trading area of approx. 30,000. Practice is located in a medical-dental centre with pharmacy. Office is large, airy and cheerful, ideal for someone who wants an immediate practice. Purchase price is very reasonable. Good size staff room, private office, large waiting room with pleasant furniture. Also efficient lab with slate work area. Dental equipment consists of Adec units, custom cabinetry, DentalEze double pump vacuum system with a large compressor, and othopantomograph in a separate room. Good stock of consumable supplies. One-write bookkeeping system with a color coded charting system, approx. 5,000 charts. The practice has concentrated on family practice with emphasis on children and prevention. Yearly gross is high. Orthodontist in locality. Full staff privileges are available at the hospital with dental equipment and general anesthesia. Rapport with M.D.s', public health etc., is excellent. The present owner is returning to postgraduate work, but is in no particular hurry to move and would be willing to introduce the purchaser to the town and the practice. Reply in confidence to: P.O Box 702, Dawson Creek, B.C. Phone (403) 782-8898 evenings.

BRITISH COLUMBIA — Harrison Hot Springs. Beautiful functional office with established preventive philosophy and more than average crown and bridge performed. Opportunity to buy practice, home, land. Office is in a bungalow in this beautiful resort town with a drawing area of 3,000 — 4,000. Only dental office in town. Realistic, fair purchase price. Contact: Karjon Management, 7300 Westminster Highway, Richmond, B.C. V6X 1A1. Phone: (604) 278-5426.

BRITISH COLUMBIA — Victoria. Excellent opportunity. First floor space available for lease, air-conditioned suburban professional building. Golfing all year around, almost no snow, 10 minutes from salt water fishing. Contact: Dr. Fennell or Dr. Poy, 1677 Poplar Ave., Victoria, B.C. V8P 4K5, or phone: (604) 477-2565 after 6.00 p.m.

BRITISH COLUMBIA. For sale or lease: High volume quality practice only 40 minutes from Vancouver in the Fraser Valley. Good volume of crown and bridge dentistry with two quality laboratories in the same building. This practice is part of a large group consisting of 11 dentists including a periodontist and an orthodontist. The clinic is new and ultra modern and one of the largest physical dental complexes in North America. The original group has been in existence for almost 10 years. Presently grossing in excess of $300,000 per annum on a four day week. An experienced operator or two young graduates could be accommodated. An opportunity for investment in the total operation is available. Reply to CDA Box Number 1903.

ALBERTA — Calgary. Large general practice for sale immediately. Gross $240,000 — could be expanded greatly. Modern Dental-Eze and Adec equipment, four operatories, private office. Sufficient for two practitioners or one very aggressive one. Owner moving, flexible take-over date. Phone during office hours: (403) 266-5104.

ALBERTA — Edmonton. Dental practice for sale in southwest Edmonton. Well established, preventive-oriented group practice, composed of four dentists and three hygienists. Dental suite consists of two operatories and mini-lab. Will consider associating with option to purchase. Reply to CDA Box Number 1881.

ALBERTA — Edmonton. For sale: Well established, busy dental practice in suburban Edmonton. Air-conditioned. Hygienist, four operatories. Ideal for two. Reply to CDA Box Number 1906.

ALBERTA — Wild Rose Country. Professional building with living quarters overlooking Rocky Mountains. Here is your opportunity to re-locate in one of west-central Alberta's fastest growing towns, within easy commuting distance from Calgary & Edmonton. Contact: Jamieson & Johnson Agencies Ltd. (Realtor), Box 910, Rocky Mountain House, Alta. T0M 1T0, phone: (403) 845-3336.

MANITOBA — Winnipeg. For sale: Well established practice, downtown Winnipeg. Consists of owner, three associates, two lab men. Associates wish to remain as associates. Owner wishes to retire. Contact: Dr. S.W. Sarbit. Phone: (204) 942-8531 or 452-4291.

ONTARIO — Kenora. Ideal practice opportunity in underserviced northern Ontario town. Three carpeted, air-conditioned operatories with common business reception area in a modern professional building with three other dentists. Excellent recreational area; boating, hunting, fishing, skiing, within minutes of the town. Contact: Bradberk Holding Corp., 34 Matheson Street, Kenora, Ont. P9N 1T6.

ONTARIO — Ottawa. For sale or lease, well established downtown dental practice. Phone: (613) 232-4715 or 226-1553.

ONTARIO — Ottawa West. Excellent opportunity for dentist to establish practice in medical building, 15 miles west of Ottawa. Ideal area to practise, with large drawing area. Owner will renovate to suit tenant. Contact: Dr. Green, phone: (613) 725-3237 or 832-2820.

ONTARIO — Hamilton. Family dental practice for sale: 2,000 plus patients. Twenty years established. Two operatories. Prime location. High gross. Low overhead. Estate of Dr. Michael Cassels, 412 Bendamere Ave., Hamilton, Ont. L9C 1P8. Phone: (416) 385-7297.

ONTARIO — Toronto. Office for lease — Markham and Eglinton. M.D. is looking for a dentist to share his 1,200 sq. ft. second floor office in a small plaza at a high density apartment area; two washrooms in office. $200 per month and utilities, required sectioning. Please contact: Dr. P. Yang (416) 466-5298 (evening).

ONTARIO — Toronto. Dentists required for a new ultra-modern dental

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MARKETPLACE

clinic recently opened in West Toronto. All applicants must be ambitious, quality conscious and preventive oriented. This 3,000 sq. ft. clinic features eight fully equipped operatories, panelipse, nitrous oxide, brand new equipment, as well as the assistance of hygienists and auxiliary personnel, all encompassed in relaxed, enjoyable surroundings. A large patient volume ensures excellent remuneration for any ambitious individual. Please send resume to CDA Box Number 1890.

ONTARIO — Preventive practice for sale or lease. Modern, 2,400 sq. ft., open-concept office in professional building. Five fully equipped Cox units, Siemen X-ray heads, Panelipse, automatic developer, central suction, nitrous oxide and central air-conditioning. Facilities shared with one other dentist. Full time hygienist and complete office staff. Please contact: Patey Management Co. Ltd., 3701 Chesswood Drive, Suite 206, Downsview, Ont. M3J 2P6, or Dr. W.R. Mercer, 124 East Frederica Street, Thunder Bay, Ont. P7E 3V5. Telephone: (807) 623-6301.

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BRITISH COLUMBIA — Vancouver. Experienced associate required for a busy, well-established practice. Associate must be willing to stay for a long period of time. Reply to CDA Box Number 1889.

ONTARIO — Windsor. Full-time associate required for busy, modern preventive-oriented general practice. Office located in downtown Professional Building. Full-time hygienist on staff. Call collect: (519) 258-6812 (office) or (519) 199-5208 (home).

OPPORTUNITIES AVAILABLE

BRITISH COLUMBIA — Cassiar. Locum or associate wanted for six weeks, three months, or longer. Spectacular scenery; excellent hunting; fishing, etc. Apply to: Dr. B. Rauch, c/o Medical Dental Clinic, Cassiar, B.C. V0C 1E0.

BRITISH COLUMBIA — Chilliwack. Dental Hygienists Required. Opportunity for two full-time hygienists in modern preventively oriented dental practice in the beautiful Fraser Valley, one hour drive from Vancouver. Graduate inquiries welcome. Please contact: Mrs. Bev. Grunau, c/o 2-103 Mary Street, Chilliwack, B.C. V2P 4H3. Telephone: (604) 792-0616.

BRITISH COLUMBIA —Fraser Valley. Large group practice requires pedodontist. Excellent opportunities. Forty-five minutes from Vancouver. Other specialties already represented. Reply to CDA Box Number 1904.

BRITISH COLUMBIA — Kamloops. Hygienist wanted for modern 2-dentist preventive-restorative type practice. Currently 6 auxiliaries on staff plus 2 Crown and Bridge technicians in personal private lab. Phone: 112 (604) 374-5855 or write Shene Management, 328 Seymour St., Kamloops, B.C. V2C 2G2.

BRITISH COLUMBIA — Are You Tired Of City Life? A partner is needed for our flourishing, established dental practice. This is an excellent opportunity for an experienced, mature, flexible dentist seeking a successful future and a new home. Our growing town is nestled in the Columbia Valley, in the Canadian Rockies, with unlimited recreation. Please send resume to Box 869, Revelstoke, B.C. V0E 2S0.

BRITISH COLUMBIA — Vancouver. Present dentist will be vacating an ideally located rental suite at 925 West Georgia Street, Vancouver, in September, 1979. The office contains an attractive reception room, business office, laboratory, dark room and two operatories. It also offers an excellent harbour view. Selling price will be set on the depreciated value of capital improvements. Expensive initial costs associated with a new dental office can therefore be considerably reduced. For further information, reply to CDA Box Number 1902.

ALBERTA — Wetaskiwin. Wetoka Health Unit requires a full-time dental hygienist, position available immediately. Duties include involvement in: preventive pre-school and school dental health programs; classroom teaching; community education programs; clinical dental hygiene for children. Qualifications: recognized University diploma in dental hygiene or equivalent and preferably some experience. Please apply in writing stating qualifications and experience to: Mrs. Betty Grayson, personnel officer, Wetoka Health Unit, 520-149 Avenue, Wetaskiwin, Alta. T9A 0R1.

MANITOBA — Winnipeg. Oral Surgeon certified to practise in Manitoba, required for a busy practice. Object partnership. Please submit qualifications and curriculum vitae, and recent photo to CDA Box Number 1892.

SASKATCHEWAN — Blaine Lake. Urgently required full or part-time dentist (visits) in thriving, growing urban and rural community, 50 miles north of Saskatoon. Accommodation and limited clinical facilities available, but not dental equipment. Modernized town, family physician, nurses, home care services. Write or contact: secretary, Board of Trade, Blaine Lake, Sask. S0J 0J0. Phone: (306) 497-2295 mornings, evenings.

SASKATCHEWAN — Saskatoon. Hygienist wanted for modern preventive two-dentist practice. Full or part-time position. For further information contact: Dr. J. MacPherson, 209-3521 Eighth Street, Saskatoon, Sask. S7H 0W5. Phone: (403) 374-9585.

ONTARIO — Clifford. Dentist wanted for individual practice in modern facilities at Clifford and Community Medical Centre. This community is located in Southwestern Ontario approximately 50 miles north and west of Kitchener. Apply to: Ray Wightman, Box 70, Clifford, Ont. N0G 1M0 or phone: (519) 327-8014 and evenings (519) 327-8017.

ONTARIO — London Area. Wanted immediately: Wonderful opportunity for young grad or one relocating. New two chair, ground floor office. Health reasons. Call collect: (519) 527-1530.

CANADIAN ACADEMY
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ENDODONTICS

Going to Quebec City for the CDA Convention? Plan to arrive a day earlier and update your knowledge of endodontics. Attend the annual meeting of the Canadian Academy of Endodontics, September 8-9, 1979 at the Chateau Frontenac Hotel, Quebec City.

FOR FURTHER INFORMATION, CONTACT:

Dr. Jean Claude Giguere
1575 Chemin St. Louis N.,
Sillery, Quebec,
G1S 1G4

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas of Northern Ontario. An incentive grant of 18,000, payable over four years, or a guaranteed net professional income of $28,000 per annum is offered. A number of salaried positions are available on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 15 Overlea Blvd., Toronto, Ont. M4H 1A9. Telephone: (416) 965-5036.

ONTARIO — Toronto. Periodontist to join busy group practice, within 50 miles west of Toronto, full or part-time. New professional building, fully equipped, etc. Area currently underserviced by specialist. Reply in confidence to CDA Box number 1905.

ONTARIO — Windsor. Associate with, or share overhead costs, with two other dentists in an established modern high-volume general practice in downtown Windsor. Dental-Eze Truth System, second room available when necessary. Full-time hygienist and dental technician. Contact: Dr. A. Lampe or Dr. P. Duronio, 550 Pelissier Street, Windsor, Ont. N9A 4L1. Phone: (519) 255-1117.

QUEBEC — Université Laval. A full-time academic position in clinical dental research is available. The successful applicant will be expected to conduct a research program on any clinical dentistry subject, however a greater potential for research exists in preventive and community dentistry, crown and bridge, periodontics, orthodontics, oral cancerology or behaviour. Postgraduate or graduate qualifications and experience in clinical research are required. In addition to research, duties will include graduate teaching and minimal undergraduate responsibilities. Candidates must be eligible for licensure by the Order of Dentists of Québec and be prepared to fulfil the French language requirements enabling him/her to teach clinically and enjoy consulting and private practice privileges. A temporary licence would be granted in the interim. Salary and rank are commensurate with qualifications and experience and are based on collective agreement. Please send letter of application, curriculum vitae and three letters of recommendation before July 30 to: Dr. Laurent Dufour, associate director, Ecole de médecine dentaire, Université Laval, Qué. G1K 7P4.

OPPORTUNITIES WANTED

BRITISH COLUMBIA — Kelowna. Dentist moving to Kelowna. Interested in part-time associateship in Kelowna or surrounding area. Twenty-five years' experience in general practice and preventive dentistry. Reply to CDA Box Number 1882.

ONTARIO — London. Dentist with 10 years' experience in general practice is seeking to purchase a practice in the London and district area. Please reply to CDA Box Number 1901.

GENTLE DENTIST with over three years' experience in general practice, seeks Vancouver opportunity. Ideal position would be part-time associateship or short day full-time position with quality preventive practice. Temporary situation also considered. Capable coverage for dentists on vacation or educational leave. Reply to CDA Box Number 1907.

DENTIST, experienced, wishes to associate part-time to start, while gradually increasing work load. Will consider most areas of British Columbia. Hospital as well as clinical setting experience in dentistry utilizing general anaesthesia. Reply to CDA Box Number 1908.

EQUIPMENT

WANTED — Second hand Weber Ultron 90 X-ray head, reasonably priced, for Montreal practice. We already have one head plus the control box for three heads. Please contact: Dr. Ascencio, 3390 Notre Dame Street, Lachine, P.Q. H8T 1W7. Phone: (514) 634-0620.

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CALIFORNIA — Applications are being accepted for advanced training in craniofacial biology, endodontics, pedodontics, periodontics, prosthodontics, oral pathology, oral and maxillofacial surgery and orthodontics.

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Each clinical specialty program is ADA accredited, leads to a certificate of study, and prepares the student for board examinations. There is also a general practice residency program which provides a certificate of completion. These programs are of 24 months duration with the exception of oral pathology and oral surgery (3 years each) and general practice residency (1 year). Each program begins July 1. Complete applications and records are due November 1, except for general practice residency, oral pathology and prosthodontics which are due December 31. The hospital residency programs (i.e. general practice residency, pedodontics, oral pathology and oral surgery) provide monthly stipends. The Graduage Program in craniofacial biology includes M.S. and Ph.D. training as well as Postdoctoral Fellowship training. Craniofacial biology is concerned with the evolution, growth and diversification, structure and function of oral-facial-cranial tissues related to the etiology, pathogenesis and mechanisms of numerous diseases and malformations. Tuition and monthly stipend awards are provided through a National Research Service Training Program from the National Institutes of Health. For additional information please contact: The University of Southern California School of Dentistry, Office of Dental Admissions — Advanced Programs, P.O. Box 77951, Los Angeles, CA. 90007.

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FOR SALE — Complete collection of all Dentofacts Cassette Tapes, 83 so far, May 1972 to March 1979, with all commentaries and wall storage case. $400 including shipping. Tax deductible. Contact: Dr. R.A. Lawson, 16 Main Street East, Kingsville, Ont. N9Y 1A2.

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Québec, P.Q., 9-12 sept. 1979

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ADDITIONAL REGISTRATION: (Required for participation to one or more activities of the convention)

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REGISTRATION FEES

DENTISTS:

— CDA Members and foreign dentists: $125. before or $150. after Aug. 1st, 1979 ..... $_____

— Canadian, Non-CDA Members : $150. before or $175. after Aug. 1st, 1979 ..... $_____

Registration entitles to attend:
— Scientific activities
— Luncheons on Monday, Tuesday and Wednesday
— Evening socials on Sunday and Tuesday
— Exhibitors Hall

AUXILIARIES: Hygienists, assistants and technicians $10. per person ..... $_____

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— Exhibitors Hall

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— Exhibitors Hall

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L'inscription AVANT LE 1er AOÛT 1979 rend éligible au tirage d'un voyage au 67e congrès dentaire mondial (FDI) à Paris du 20 au 26 octobre 1979.

ANNULATION: Seulement ceux qui annuleront avant le 1er août 1979 seront remboursés.
Faire chèque ou mandat à l'ordre de: **CONGRÈS NATIONAL DE L'ADC 1979**
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Québec, P.Q., 9-12 sept. 1979

FORMULE DE RÉSERVATION DE CHAMBRE D'HÔTEL
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2. _____	☐	☐	☐	☐
3. _____	☐	☐	☐	☐

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Date de départ _____ A.M. P.M. _____ Date departing

	Simple Single	Double Jumeaux / Twin	Suite
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3. Loews Le Concorde	$45	$55	$90-4
4. Auberge des Gouverneurs	$44.50	$54.50	$115-2
5. Holiday Inn	$30	$36	$55

Date limite pour les demandes de réservations: 1er août 1979
Deadline for making advance reservations: August 1st, 1979

Retourner cette formule de réservation avant le 1er août au secrétariat du congrès et NON À L'HÔTEL.

Return this reservation form before August 1 to the convention headquarters and NOT TO TH HOTEL.

Toute modification ou annulation devra être faite, par écrit, au secrétariat du congrès avant le 1er août.

All cancellations must be made in writing to the conv tion headquarters before August 1st.

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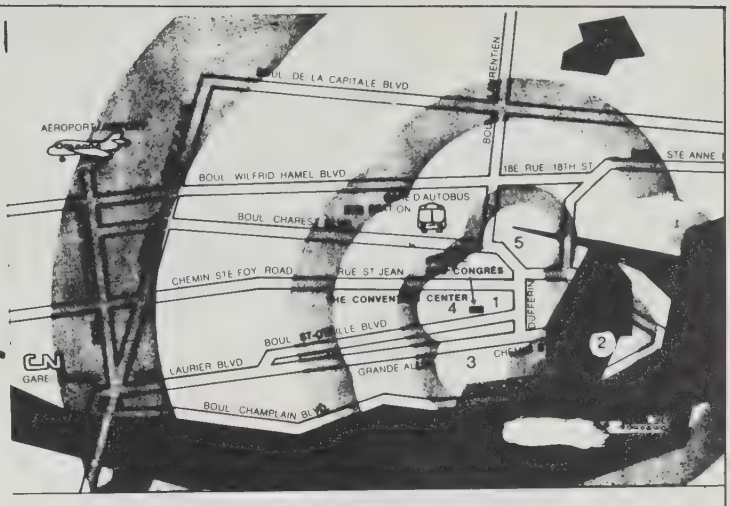

Dorchester

de la Couronne

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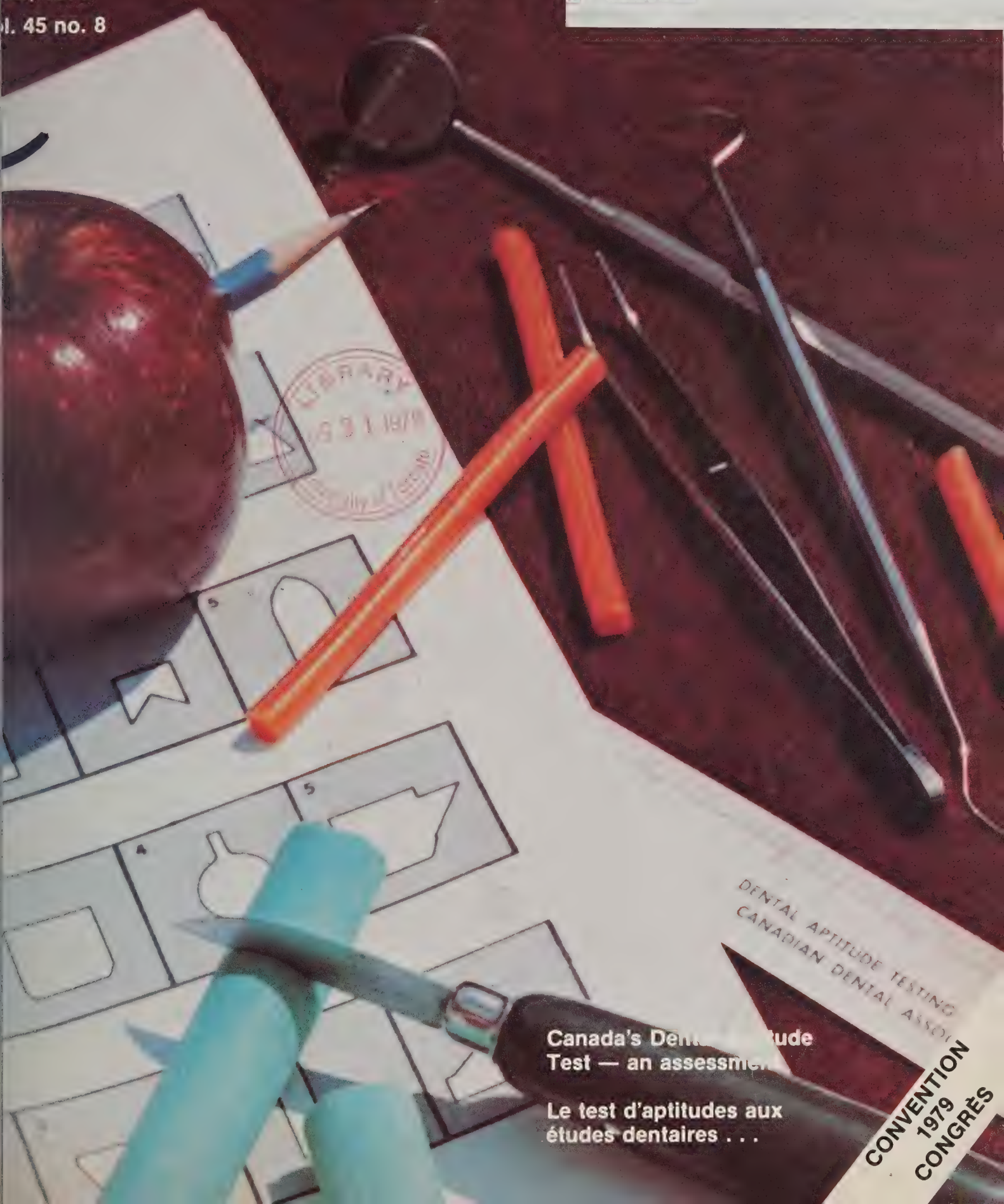

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COVER

It takes more than luck to get into dental school. Every year it's more and more difficult to select students for dentistry, but with the help of the Dental Aptitude Program the selection process is becoming increasingly more scientific. See page 400.

August, 1979 Août, 1979

Canadian Dental Association

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Admission procedures - an assessment

For 12 years, applicants to Canadian dental schools have written the Dental Aptitude Test; the DAT s presently a requirement of admission at all ten faculies. Many changes have taken place in the program since ts inception in 1967 and in this issue of the Journal eaders will find a series of six articles designed to inform he profession — administrators, educators and practiioners — about what has taken place during the developnent of the DAT program and its place in dentistry oday.

These six papers were presented at the Association of Canadian Faculties of Dentistry 10th Biennial Conference on Canadian Dental Research and Education last year. They are the work of five members of the Dental Aptitude Test Committee of the Canadian Dental Association's Council on Education — Dr. Walter Teteruck, chairman; Dr. Marcia Boyd; Dr. James Graham; Dr. Gordon Thompson; and Dr. Ernest Ambrose (whose term with the DAT committee expired in June of this year).

The first paper, "The History of the Dental Aptitude Test Program in Canada", is coauthored by Drs. Teteruck, Boyd and Ms Linda Teteruck, CDA's director of Student Affairs. Credit should also be given to those who recogized the need for a national testing service as early as 1964 nd took the initial steps towards the development of the DAT program.

The authors of the papers that follow have been involved in the program since 1974 when it was completely eorganized.

The second paper, on the content and use of the DAT, is ritten by Drs. Graham and Boyd. It deals with the type of xaminations used in the test battery, their content and, ery importantly, how they are graded and interpreted. Over the years, major emphasis has been placed on the cademic and manual strength of prospective dental stuents, but interest has now expanded to include the invesgation of personality traits.

The third paper is "Personality Testing for Dental Admissions" by Drs. Boyd, Graham and Teteruck. It is nticipated that personality testing will provide admisons committees with a broader base of information with espect to an applicant's attitudes, values and motivation.

In the fourth paper, Dr. Thompson and his coworkers evaluate various components of the DAT to see how ell they function in predicting performance in dental chools. This type of research gives the DAT program dministrators the data they need to effectively change nd upgrade various parts of the test.

The fifth paper, by Dr. Ambrose and Ms Teteruck, reports information gathered in a recent survey of admissions procedures used in Canadian dental schools. This paper gives some insight into the structure of the admissions committees — how they are the same, how they differ. It reports, among other things, whether or not a school conducts interviews and comments on possible interview questions. This paper provides what appears to be the most effective procedure against which each school may compare its own policies and should also be of interest to all dentists who might counsel prospective dental students at one time or another on what dental schools look at, and demand, for admission.

The last paper, by Drs. Boyd, Teteruck and Thompson, on "The DAT: Its Application in Admission" is presented in an attempt to provide information that will help dental school admissions committees in their decision-making. It is a comprehensive review of the literature stating the problems of aptitude test validation and giving some practical guidelines for the application of DAT scores.

During the past five years, the people involved in the DAT program have been primarily interested in the areas covered by the papers published in this issue of the Journal. In the future, DAT committee members will also be committed to the investigation of personality involvement in dentistry and the effectiveness of the personal interview in the selection process.

Contemporary professional education is extremely costly and there is tremendous pressure on those involved with admissions to select students who will succeed in dentistry and represent the profession well. It is the hope of committee members that we are contributing to this goal through the Dental Aptitude Testing program.

Dr. Walter R. Teteruck

ÉDITORIAL

Le Test d'aptitudes aux études dentaires

Depuis douze ans, les étudiants désireux de s'inscrire aux écoles dentaires canadiennes doivent subir le Test d'aptitudes aux études dentaires. Le TAD constitue actuellement l'un des critères d'admissibilité des dix facultés dentaires au pays. Le Test a grandement évolué depuis son origine, en 1967, et nos lecteurs trouveront dans le présent numéro du Journal une série de six articles visant à renseigner les membres de la profession dentaire — administrateurs, enseignants et praticiens — sur les changements qui se sont manifestés et la place du Test dans le domaine de la dentisterie aujourd'hui.

Ces six exposés avaient été soumis, l'an dernier, à la Dixième Conférence biennale sur la recherche et l'éducation dentaire au Canada. Ils sont l'oeuvre de cinq membres du Comité du Test d'aptitudes aux études dentaires, organisme relevant du Conseil d'éducation de l'Association Dentaire Canadienne: le Dr Walter Teteruck, président; le Dr Marcia Boyd, le Dr James Graham, le Dr Gordon Thompson, ainsi que le Dr Ernest Ambrose (dont le mandat auprès du comité se terminait cette année, en juin).

Le premier exposé, "L'historique du programme des tests d'aptitudes aux études dentaires au Canada", est un ouvrage conjoint des docteurs Teteruck et Boyd, ainsi que de Mlle Linda Teteruck, directrice des affaires étudiantes à l'ADC. Il convient également de mentionner la contribution de ceux qui ont su reconnaître, dès 1964, la nécessité d'établir un service national de tests et qui ont mis le processus en branle.

Les auteurs des exposés mentionnés ci-dessous ont été mêlés au programme depuis son remaniement total, en 1974.

Les auteurs du deuxième exposé, portant sur la teneur du TAD et ses mérites, sont les docteurs Graham et Boyd. Ils expliquent le genre d'épreuves faisant partie de la série de tests, leur contenu et, chose à ne pas négliger, le calcul de leurs résultats et leur interprétation. Au cours des années, on avait attaché une grande importance aux connaissances et à la dextérité manuelle des candidats aux études dentaires, mais on reconnaît maintenant l'importance d'une exploration de leur personnalité.

Le troisième exposé, oeuvre des docteurs Boyd, Graham et Teteruck, traite des "Tests de personnalité pour la sélection des candidats aux études dentaires". On prévoit maintenant que l'exploration de la personnalité des candidats procurera aux comités d'admission des renseignements plus complets sur leur attitudes, leurs valeurs et leur motivation.

Dans le quatrième exposé, le Dr Thompson et ses collègues évaluent les divers éléments des tests d'aptitudes pour déterminer dans quelle mesure ils permettent de prévoir le succès des étudiants. Ce genre de recherches procure aux administrateurs du TAD les données dont ils ont besoin pour modifier et améliorer les divers éléments du test.

Le cinquième exposé, oeuvre du Dr Ambrose et de Mlle Teteruck, rend compte d'une enquête récente sur le processus d'admission dans les écoles dentaires du Canada. On y donne un aperçu de la structure des comités d'admission, de leurs similitudes et de leurs différences. Cet exposé mentionne si l'école mène des entrevues avec les candidats et formule des commentaires quant à des questions qu'on pourrait alors poser. Il semble procurer aux écoles le meilleur moyen de comparer leurs politiques respectives, en plus de comporter un grand intérêt pour les dentistes qui peuvent être appelés à conseiller des futurs étudiants sur les exigences des écoles dentaires.

Le dernier exposé, rédigé par les docteurs Teteruck, Boyd et Thompson, s'intitule "Les tests d'aptitudes aux études dentaires — leur utilité dans le processus d'admission". Il vise à aider les comités d'admission des écoles dentaires à raffiner le processus grâce auquel ils prennent leurs décisions. Il s'agit d'un examen poussé de la documentation relative aux problèmes de validation des tests d'aptitudes. Les auteurs y exposent également certains principes directeurs pour l'interprétation des résultats des tests.

Au cours des cinq dernières années, les spécialistes mêlés au TAD se sont surtout penchés sur les questions abordées dans les exposés que nous publions dans le présent numéro du Journal. À compter de maintenant, les membres du comité du TAD étudieront également l'importance de la personnalité dans la pratique de la dentisterie et l'efficacité des entrevues dans le processus de sélection.

De nos jours, la formation professionnelle coûte terriblement cher. Il est donc primordial d'éliminer, autant que possible, tout risque d'erreur dans le processus de sélection, afin que les candidats choisis réussissent, tant comme dentistes que comme représentants de la profession. Les membres du comité espèrent que le programme de tests d'aptitudes aux études dentaires contribue à atteindre de cet objectif.

Dr. Walter R. Teteruck

Dentists were consulted . . . Gavriloff

You have published the full text of the CDA president's letter relating to the dental therapy training and service program addressed to the minister of the Department of National Health & Welfare, in the May, 1979 Journal.

The School of Dental Therapy was initiated in 1972 jointly by the Department of National Health & Welfare and the University of Toronto, Faculty of Dentistry. At the opening ceremonies in Fort Smith, Northwest Territories, September 1972, the Canadian Dental Association was represented by the Executive Director.

Articles regarding the Dental Therapy training and service program have been published in the Journal of the Canadian Dental Association, July, 1972 and April, 1974 and Hospital Administration in March, 1975.

The president's comment in his letter "the dental profession in Canada has never been consulted in this area" needs to be challenged.

Dr. Thomas Gavriloff,
Dental Consultant
Program Management
Medical Services Branch
Health and Welfare Canada.

. . . but not about changes

Dear Dr. Gavriloff:

Thank you for your letter of June 8, 1979 (relating to the Dental Therapy program in Canada) and written in response to the letter to then Minister of Health and Welfare, Monique Bégin, that appeared in the May issue of the Journal.

It seems the primary intent of your letter is to take issue with Dr. Moran's statement . . . "the dental profession in Canada has never been consulted in this area."

While the Canadian Dental Association was aware of plans to establish a school for dental therapists in the Northwest Territories (a brief announcement of the official opening of the school appeared in the Journal July, 1972 and a feature on the progress of the program was printed in April, 1974), as the graduating therapists began to spread into Nova Scotia, Manitoba, Alberta and British Columbia, operating in some cases in areas where a dentist was not available, this association became increasingly concerned.

With the latest federal government move to permit therapists to work in the provinces of Ontario and Newfoundland, the Canadian Dental Association Board of Governors reaffirmed its contention that the federal government is infringing on the jurisdiction of the provincial dental licencing bodies.

While the Canadian Dental Association may agree with the intent of the therapist program (to provide dental services, under direct supervision, on reserves), it is concerned about how the therapist program is actually working. In fact, therapists have been performing dental operations and procedures without direct supervision, contrary to the dental act of each province in which they work.

This development is contrary to the original intention of the role of the dental therapist working on reserves, under the direct supervision of the dentist and it is in this area that "the dental profession in Canada has never been consulted."

The Canadian Dental Association is first and foremost determined to maintain the highest quality of dental health care throughout this country. Unlicenced personnel, trained in only limited aspects of dentistry, cannot provide this care.

editor

Dental office assembly lines?

I very much agree with Dr. Donald Rife (Journal, June, 1979), that the phrase "delivery of dental health care" envisions computerized, mechanical robots clicking their way through millions of standardized treatment modes on an assembly line.

Henry Ford would be gratified to see how far his ideas have spread.

Computer salesmen are now trying to plug into every dental office, offering a clicking box of tricks that supposedly substitutes for the thinking, caring human brain.

Our patients have a right to expect our office staff to have their minds in gear, and not have to deal with a computer. Dental office record-keeping is not complex or difficult. The most essential component is a caring attitude — and that can't be delegated to a machine.

Computers have their proper place, perhaps to monitor shots at the moon, but not in health care.

Let's communicate with our patients and help prevent '1984'.

Dennis Bullen, DMD, DDPH,
Comox, British Columbia

Format is good . . .

Congratulations on the new format of the C.D.A. Journal!

It is a tremendous improvement, and it makes the Journal an even greater pleasure to read.

Dr. Randall T. Lang
Mississauga, Ontario

The Journal of the Canadian Dental Association is pleased to make this space available for "Letters to the Editor". All letters must be signed and the editor reserves the right to edit communications according to space requirements.

LETTERS

Experience is "regrettable"

It is regrettable Dr. W.A. Ring found his employment with Medical Services Branch so unsatisfactory (CDA Journal, July, 1972). I do not wish to debate with Dr. Ring by letter but I do feel the dentists of Canada should have a clarification of Dr. Ring's statements.

The Dental Clinic in Inuvik does afford dentists the "opportunity to practice all phases of dentistry" within the limitations set by established priorities. The major priorities are placed in the field of children's dentistry. This does not mean the remainder of the population is neglected, but that the emphasis is on dental care for children.

Dr. Ring has presented a case to reflect potential danger to patients due to an absence of an adequate emergency kit and emergency drugs in the Dental Department. The Dental Department is situated in Inuvik General Hospital and is within 20 feet of a completely staffed and equipped hospital Emergency Department. Still, when the supervisor of the Dental Department, on his arrival in December, 1978, did express his concern over the lack of an adequate dental emergency kit, one was ordered and did arrive during Dr. Ring's stay.

Dr. Ring's statement regarding the equipment to provide nitrous oxide sedation is true. As none of the dentists practising in Inuvik over the past three years have wished to use nitrous oxide sedation, the replacement of the tubing was not considered a high priority.

The Dental Department underwent a complete investigation by the Radiation Protection Bureau, Health Protection Branch, Health and Welfare Canada on September 13 to 15, 1978. The ensuing report did not recommend additional shielding. When Dr. Ring expressed his concern, the Radiation Protection Bureau was contacted to ensure their initial report was correct. It was confirmed indicating a minimum 10-fold safety factor. Dr. Ring was informed of this report.

When Dr. Ring presented his 'paper clip' findings, this information was forwarded to the Radiation Protection Bureau. The response was that the experiment conducted did not take into account the absorption by the patient's head (over 90 per cent) and the fact that the beam direction changes for consecutive exposures, and from patient to patient. The Radiation Protection Bureau continues to state no further shielding is required.

Prior to his accepting the position, Dr. Ring was informed about the job he was to fill, the salary, the Isolated Post Allowances and the Isolated Post Regulation regarding inward and outward bound expenses. Dr. Ring accepted employment under these conditions. It should not have been a surprise when he was requested to comply with this regulation. The compensation for extra professional services is an agreement between the dental group of the Professional Institute of the Public Service of Canada and the Treasury Board. This is a negotiated agreement, renewed at the end of each contract, usually yearly. If Dr. Ring had concerns regarding adequate compensation, he should have directed them to the Professional Institute of the Public Service of Canada — his bargaining agent. There is an active branch in Inuvik.

Dr. Ring refers to the lack of proper sterilization facilities for his instruments on one of his field trips. What he says is true — as far as it goes. An autoclave was not sent on "the next scheduled flight" because this flight was to go into the settlement when there was less than one week of clinic left. Sterilization equipment at the nursing station was available.

Dr. Ring refers to the high turnover of staff with Medical Services in the north. There is a high rate of turnover, but most staff do not leave after a term of one year or less. The following figures speak for themselves: in the Inuvik Zone, 60 per cent of the staff have more than a year service; 40 per cent have more than two years; 28 per cent have more than three years; 21 per cent more than five years; and 10 per cent more than 10 years of service. The turnover rate is not satisfactory, but many staff members come north intending to spend only one year. The climate and isolation is not suitable for everyone. The lack of southern facilities accounts for the departure of others. In some cases, the work atmosphere is not suitable, but this situation arises in all areas of Canada.

It is unfortunate Dr. Ring chose to express his dissatisfaction in such a negative manner. It is hoped his view will not prevent dentists from seeking employment in the north with Medical Services. Dental services are needed and form part of a comprehensive health care system. Currently 50 per cent of dentists with Medical Services in the Northwest Territories Region have been with the Department more than four years.

D.W. Shellenberg, B.Sc. (Pharm), C.H.A.,
Acting Zone Director,
Inuvik Zone

Le Journal de l'Association Dentaire Canadienne est heureux d'offrir cet espace aux lecteurs désireux d'envoyer des "Lettres à la rédaction". Toutes les lettres doivent être signées et la rédactrice en chef se réserve le droit de les raccourcir si le manque d'espace l'impose.

Une lettre . . .

Vous avez publié, dans le numéro de mai 1979 du Journal, le texte intégral d'une lettre du président de l'ADC au ministre de Santé et Bien-être Canada au sujet du programme de formation et de service de thérapie dentaire.

L'École de thérapie dentaire a été établie en 1972 grâce à une initiative conjointe de ministère de la Santé nationale et du Bien-être social et de la Faculté de dentisterie de l'Université de Toronto. L'Association Dentaire Canadienne était d'ailleurs représentée par son directeur général à l'occasion des cérémonies d'inauguration qui ont eu lieu en septembre 1972, à Fort Smith, dans les Territoires du Nord-Ouest.

D'autre part, des articles portant sur le programme de formation et de stage en thérapie dentaire ont été publiés dans le Journal de l'Association Dentaire Canadienne en juillet 1972 et en avril 1974, ainsi que dans la publication Hospital Administration, en mars 1975.

À la lumière de ces faits, il convient de mettre en doute l'affirmation du président de l'ADC, alors qu'il disait dans sa lettre que "la profession dentaire au Canada n'a jamais été consultée à ce sujet".

Dr. Thomas Gavriloff,
Direction des services médicaux,
Santé et Bien-être Canada

. . . et une réponse

Cher docteur Gavriloff,

Merci de votre lettre du 8 juin 1979 (concernant le programme de thérapie dentaire au Canada), en réponse à la lettre à Mme Monique Bégin, alors ministre de Santé et Bien-être Canada, lettre parue dans le numéro de mai du Journal.

Votre lettre semble surtout viser à contredire l'affirmation que "la profession dentaire au Canada n'a jamais été consultée à ce sujet".

Il est vrai que l'Association Dentaire Canadienne était au courant de projets visant à établir une école de thérapeutes dentaires dans les Territoires du Nord-Ouest (le numéro de juillet 1972 du Journal mentionnait brièvement l'inauguration officielle de l'école, puis un article décrivant l'évolution du programme est paru en avril 1974). Néanmoins, au fur et à mesure que les thérapeutes diplômés commencèrent à aller s'établir en Nouvelle-Écosse, au Manitoba, en Alberta et en Colombie-Britannique, exerçant parfois leur occupation dans des endroits déjà desservis par un dentiste, l'Association a vu son inquiétude croître.

Maintenant que le gouvernement fédéral autorise, depuis quelque temps, les thérapeutes à exercer leur occupation en Ontario et à Terre-Neuve, le Conseil d'administration de l'Association Dentaire Canadienne s'élève à nouveau contre cette intervention injustifiée du gouvernement fédéral dans un domaine de juridiction des organismes provinciaux responsables d'accorder le droit d'exercer dans le domaine dentaire.

Bien que l'Association Dentaire Canadienne appuie les objectifs du programme de thérapie dentaire (à savoir fournir des services dentaires dans les réserves, sous supervision directe), elle s'inquiète de la façon dont fonctionne réellement le programme. De fait, des thérapeutes ont réalisé des interventions dentaires et donné d'autres soins sans surveillance directe, contrairement aux dispositions de la loi dans chacune des provinces où ils exercent leur occupation.

La situation a donc évolué bien au-delà de ce qu'on prévoyait à l'origine quant au rôle du thérapeute dentaire dans les réserves, où il devait travailler sous étroite surveillance d'un dentiste; c'est à ce point de vue que "la profession dentaire au Canada n'a jamais été consultée".

La préoccupation fondamentale de l'Association Dentaire Canadienne est de veiller à ce que les soins dentaires donnés au pays soient du plus haut calibre. Un personnel non breveté, dont la formation porte strictement sur des aspects limités de la dentisterie, ne peut garantir de tels soins.

rédacteur

Reasons for post-injection trismus

I read with interest Dr. G. Allan Taylor's letter (CDA Journal, June, 1979) about what I now term "post-injection trismus".

Some years ago I might have agreed with him that early forcible opening of the jaw was the treatment of choice for these patients. However, I recently reported on a series of 16 cases where this procedure was necessary in only three patients (Oral Surgery, Oral Medicine and Oral Pathology, vol. 47, 1979 "Post-Injection Trismus Due to Formation of Fibrous Band").

This condition will usually resolve spontaneously, being helped by gentle physiotherapy including jaw opening exercises. It must be admitted that in some cases the trismus is very troublesome to the patient and forcible opening is essential, but I do not think that in the vast majority of cases this is necessary.

A final point that I have drawn the readers' attention to in my article is that there are other reasons for post-injection trismus. These include needle track infection, and the development of myofascial pain dysfunction syndrome. It is essential that a very firm diagnosis be made if forcible opening is to take place as this procedure is of no help at all in the other two conditions to which I have referred.

Dr. Ralph Brooke,
Professor and Chairman,
Department of Oral Medicine,
University of Western Ontario.

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Most insurance claims for disability income

A total of $3,378,577 was paid out in claims during 1978 by the Canadian Dentists' Insurance Program, according to a recent report prepared by Canadian Dental Service Plans Incorporated.

Additional claims of more than $150,000 were in the process of settlement at year end.

The claims were paid to 588 individual dentists — approximately one out of every 18 across the country.

Claims were made under each of the nine different plans in the program, but more than 60 per cent involved the two disability plans — Long Term Disability, and Office Overhead Insurance.

Numerically, claims involving damage to office contents formed the second largest group, representing close to 20 per cent of all claims.

Statistics also show approximately 85 per cent of all Canadian dentists now participate in at least one of the plans in the Canadian Dentists' Insurance Program.

Dr. George Zarb, Toronto, left, looks on as Dr. Gerry Locke, past president of the Association of Prosthodontists of Canada, greets Dr. Gunnar Carlsson of Sweden. Dr. Herb Ptack, president-elect of the Association, right, is standing next to Dr. Locke. Dr. Zarb and Dr. Carlsson are co-authors of a forthcoming text on the TMJ and its relationship to clinical symptoms, both physical and psychological.

'Flying Doctor' is guest speaker

A combined meeting of the Association of Prosthodontists of Ontario and Canada was held recently in Toronto. A highlight of the meeting was the presentation of an Honorary Life Membership in the Association of Prosthodontists of Canada to Dr. Ken Kerr of Halifax, Nova Scotia.

The evening's guest speaker was Dr. Michael Wood, founder of the East African Flying Doctor Service operating out of Nairobi, Kenya. He spoke on the challenge of delivering low-cost, effective health care in developing nations.

Dr. Gunnar Carlsson from Sweden, world renowned authority on the temporomandibular joint, also spoke at the two-day meeting. His presentation was titled "Temporomandibular joint: Function and Dysfunction."

Fluoridation still the best way to cut dental costs

The following bulletin was prepared by Mr. Lloyd Bowen, CDA Fluoridation Officer.

Recent publicity about potential health hazards to native peoples on Cornwall Island as a result of fluoride emissions from a plant in New York State has caused some people to question the safety of fluoridation of community water supplies to fight tooth decay.

Any element of nature when taken in excessive quantities can be harmful and there should be no excuse for polluting the atmosphere and soil with such fumes. The Canadian Dental Association is just as much against pollution as others are.

But this has nothing to do with water fluoridation. Over a third of a century of experience shows that when the fluoride content of drinking water supplies is adjusted just a trace to about one part fluoride to a million parts of water, in a few years this results in a remarkable reduction in tooth decay. Used this way fluoride is an essential nutrient and may be consumed safely throughout life.

CDA recommends the use of fluoridation, wherever practicable, in all drinking water supplies that are deficient in fluoride. To do so will result in life benefits and the cost of children's dental care can be cut in half.

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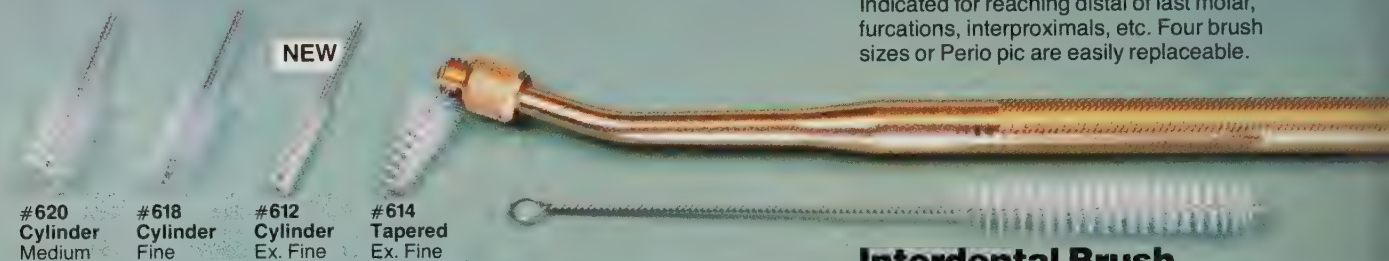

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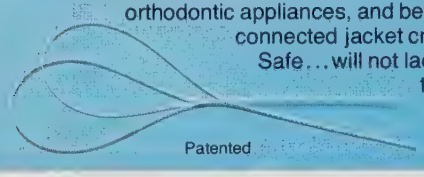

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SOCIETY NEWS

Mount Royal Dental Society . . .
The 1979-1980 executive of the Mount Royal Dental Society and the Alpha Omega Dental Fraternity, Montreal Alumni Chapter includes: Dr. Stephen Miller, president; Dr. Peter Safran, vice president; Dr. William Klein, immediate past president; Dr. Saul Levine, corresponding secretary; Dr. David Kazloff, recording secretary; Dr. Irwin Margolese, treasurer; Dr. Andrew Toeman, editor.

Ontario Society of Oral and Maxillofacial Surgeons . . .
The 1979 executive of the Ontario Society of Oral and Maxillofacial Surgeons includes: Dr. George White, president; Dr. William Prusin, president-elect; Dr. Harry Hersh, secretary-treasurer.

Ontario Society of Orthodontists . . .
Recently elected officers of the Ontario Society of Orthodontists are: Dr. John Jenkins, president; Dr. Don Gilbert, past president; Dr. Ray Bozek, vice president; and Dr. Bryan Smith, secretary-treasurer. Regional representatives include Dr. G. James (Orillia), northern; Dr. R. Albert (Ottawa), eastern; Dr. D. Beaton (London), western; and Dr. B. Wilson (Toronto), central.

Canadian Academy of Periodontology . . .
Dr. Fredrick Muroff is president of the Canadian Academy of Periodontology, 1979-80. Other executive members include: Dr. D. Penz, president-elect; Dr. F. Lackie, secretary treasurer; and Dr. S. Borden, immediate past president.

Close to 1,000 dentists, assistants, hygienists and students attended the Annual Dental Convention of the College of Dental Surgeons of British Columbia held recently in Vancouver. The five-day meeting featured table clinics, "diagnostic trouble shooting", lectures, a wine and cheese gathering and an opportunity to look at exhibits.

Trenton dentist named AGD secretary

CHICAGO — Dr. Robert Patrick, former mayor of Trenton, Ontario, was recently reelected secretary of the Academy of General Dentistry (AGD) the second largest dental organization in North America.

Dr. Patrick is a graduate of the University of Toronto Faculty of Dentistry and maintains a private practice in Trenton. He has served as a governor of the Trenton Memorial Hospital, is the past chairman of both the County and City Planning Boards, and has served as a member of the Board of Police Commissioners. Dr. Patrick has also served as chairman of the City Finance and Public Works Committee and was a member of the County Executive Committee. He is the past-president of the Trenton Rotary Club and the former director of the Chamber of Commerce.

A Fellow of the Academy of General Dentistry, Dr. Patrick was elected to his first term as AGD's secretary in 1977. He has served AGD as national director of Region XV, which includes the provinces of Eastern Canada, Ontario, Quebec, Nova Scotia, Prince Edward Island, and New Brunswick. Dr. Patrick has also served as chairman of the 1977 AGD Annual Meeting in Montreal, and as a member of AGD's Budget and Finance Committee.

Dr. Lewis heads study

Dr. Donald Lewis, renown epidemiologist at the University of Toronto, Faculty of Dentistry and the Public Health Specialty Representative with the Journal is conducting a study to determine optimum manpower levels for the dental profession and auxiliary groups in Ontario. The work is being funded by the Ontario Government.

The Ontario Dental Association reports that close to 900 dentists will graduate from the province's two dental faculties in the next five years.

Newfoundland meeting

The Annual Meeting of the Newfoundland Dental Association will take place in St. John's, November 17, 1979 at the Holiday Inn.

A block of rooms has been reserved but dentists are requested to make their own reservations.

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Honorary Membership for Dr. K. Kerr

Kenneth Kerr, DDS (Dalhousie), FICD, FRCD(C), professor emeritus of Prosthodontics and former head of the Division of Removable Prosthodontics at Dalhousie University, was recently recognized by the Association of Prosthodontists of Canada/l'Association des Prosthodontistes du Canada, with an Honorary Membership in the Association.

Dr. Kerr was Charter Member of the Association and he has actively taken part in organizing other prosthodontic associations in Canada and the United States. He is also a Charter Fellow of the Royal College of Dentists of Canada and a Charter Sponsor of the Carl O. Boucher Prosthodontic Conference.

He is a past president of the Canadian Academy of Prosthodontists and has been a Canadian representative to the Federation of Prosthodontic Organizations.

Dr. Kerr completed a post graduate program in Prosthodontics at Ohio State University. He is currently in private practice in Halifax.

Dentists go north

Having decided to take his profession into a more remote area of Quebec, recent McGill University dentistry graduate, Dr. Bruce Oliver had only to decide just where. With classmate Dr. Raymond Bédard, he picked Dolbeau, a community about 560 km north of Montreal.

Dr. Oliver and Dr. Bédard will bring the total of dentists in the town to four but with a surrounding population of close to 14,000 there will be plenty of work to do.

Dr. Oliver admits his choice of Dolbeau was made completely by accident, but both he and Dr. Bédard now say they wouldn't want to be anywhere else.

The night they arrived with their equipment and their brand new degrees to open their office they were welcomed with open arms by the local Chamber of Commerce and several residents have been on hand to help out with the office renovations.

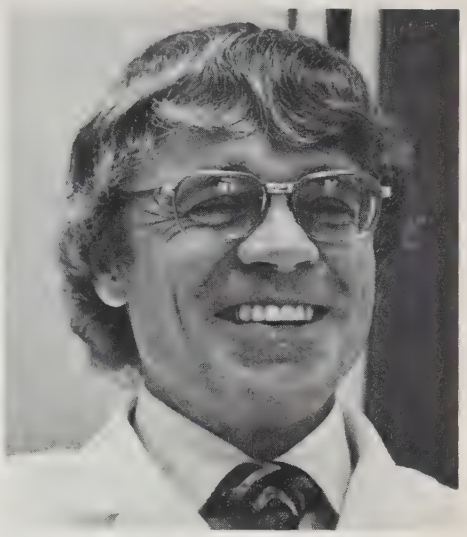
There's no place like home . . .

Dentists and doctors as far apart as Victoria, British Columbia and Port Credit, Ontario, shared a common problem recently when residents of both cities spoke out against office space in residential areas.

In Victoria, Oak Bay residents protested against the practice of a local dentist who works out of his home. The dental practice conforms to existing local by-laws but as a result of the petition by irate neighbours, Oak Bay council will draft new regulations which, if accepted, will prevent the location of medical offices in family homes.

In the Port Credit situation, seven local property owners protested an application, by a dentist, to open a dental clinic in a residential area. Citing traffic and noise, the residents said the office would disrupt their street. The house was to have been converted entirely to office space and the dentist did not intend to live in the building, as required by existing by-laws.

A similar case, involving two dentists, has arisen in Prince Albert Saskatchewan. The application by the dentists to open a practice in a home in which they do not plan to live has been turned down by City Council after several complaints concerning potential traffic and parking problems in the residential area were received.



Dr. Dennis Smith

Degree for Dr. D. Smith

Dr. Dennis Smith, professor of Biomaterials, University of Toronto, Faculty of Dentistry, was recently awarded the degree of D.Sc. by the University of London, England, in recognition of his published work in the area of Dental Materials Science and Biomaterials.

Dr. Smith is currently chairman of the Canadian Dental Association Council on Dental Materials and Devices, the Canadian Advisory Committee on the International Standards Organization Technical Committee for Dentistry and the Canadian Standards Association Committee on Dentistry. He is also Founding chairman of the Biomaterials Society, Toronto, Ontario.

Arts part of dentistry

Boston University has initiated a new seven-year Liberal Arts-Dental Education Program similar to those in operation at Case-Western Reserve University, the University of Pennsylvania and New York University.

The program is designed to give prospective dentists the opportunity to more fully explore the humanities and social sciences.

IN THE NEWS

From the Faculties . . .

University of British Columbia . . .
UBC, Division of Continuing Education has received a $10,000 grant from the College of Dental Surgeons of British Columbia to support the regionalization of continuing dental education through the appointment of regional directors.

University of Alberta . . .
Dr. D.J. Carmichael began a six month study leave on July 1. He will be reviewing the current work in immunochemical studies of the developing tooth primordium and the proteolytic cleavage of the dentine matrix collagen. These studies will be carried out at the University of Liverpool . . . Dr. Roger Ellis has been named chairman of the Department of Dental Health Care. His appointment is effective September 1. Dr. Ellis is a member of the CDA Council on Information Services (liaison to the Committee on Product Acceptance) and Secretary-treasurer with the Canadian Society of Public Health Dentists.

University of Saskatchewan . . .
Dr. David Tyler has been appointed head of the Department of Oral Biology . . . Dr. Axel Ruprecht was recently elected secretary treasurer of the Canadian Academy of Oral Radiology . . . the Dental Clinic Building of the University was officially opened June 19. Dean Ernest Ambrose chaired the ceremonies.

University of Manitoba . . .
Dr. Arthur Storey, head of the Department of Preventive Dental Science was MRC Visiting Professor to the College of Dentistry, University of Saskatchewan. Dr. Storey also participated in a Symposium on the Biological and Clinical Bases of Occlusion at the University of Antioquia, Columbia, last month.

University of Western Ontario . . .
Major research grants to support studies on the biochemical, morphologic and microbial aspects of localized osteitis (dry socket syndrome) have been awarded to Dr. I.D.F. Schofield (Oral Surgery), Dr. J. Rozanis (Microbiology), and Dr. B.A. Warren (Pathology).

University of Toronto . . .
Dr. Donald Lewis has been appointed consultant to the Pan American Health Organization of the World Health Organization in Washington. Dr. Lewis will specifically study and make recommendations concerning the dental care system of the Bahamas . . . Dr. Frances Greenwood and Dr. Dorothy McComb have been appointed assistant professors, Clinical Dentistry.

Université Laval . . .
Drs. Christian Bernard, Gustave Lachance, Guimond Hébert, Rénald Morency, Roger Tanguay and Roland Vallée have been appointed associate professors.

Dalhousie University . . .
Dr. John Eisner, assistant dean, went on a 16-day tour of the People's Republic of China. He visisted dental and education facilities for demonstrations of acupuncture anesthesia in endodontic procedures and discussions on dental research. Dr. Eisner also discussed dental care delivery and the prevalence of periodontal disease with clinicians and public health officials.

Ann Hammell

Communications Director

Ann Hammell, director of Communications with the Canadian Dental Association, is a Journalism graduate of Carleton University.

Prior to joining CDA, Miss Hammell was information director with the Canadian Lung Association. During her career she has worked as a political reporter, radio commentator and fashion show coordinator. She is an experienced speech writer and copywriter in both radio and television.

Miss Hammell is a past president of the Women's Advertising and Sales Club and a past president of the Ottawa Branch of the Carleton University Alumni Association.

As director of Communications, Miss Hammell will continue to develop CDA pamphlets and brochures and is currently directing the redesign of the Journal. She maintains a liaison with news media and coordinates communications functions within the Canadian Dental Association.

Setchell to ODA

William Setchell was recently appointed director of Administration with the Ontario Dental Association.

Mr. Setchell comes to ODA with a business and academic background and was, most recently, business administrator, Library Automation Systems, University of Toronto.

Liz McKee

Journal Editor

Liz McKee is a graduate of Queen's University in english and political science. The newly appointed editor of the Journal of the Canadian Dental Association, Ms McKee has worked for the last ten years in several areas of journalism including, most recently, as a newspaper sports editor. She has also worked as an editor in the business publications field with MacLean Hunter Ltd. and has freelanced articles for educational publications.

Ms McKee is an experienced teacher of english as a second language and has served on the Boards of Directors of community organizations.

As editor of the Journal, Ms McKee is responsible for compiling news from across the country, developing themes and laying out the magazine.

Last year 140 dentists applied to the Quebec Order of Dentists for certificates of good standing — 40 per cent more than in 1977. The prediction is that the number of dentists considering leaving the province (and therefore who need the certificate) will dwindle to less than 40 once the tide of departing anglophone dentists ebbs. — The Montreal Star, May 28, 1979.

Oral Surgeons' book award winners

The book award of the Canadian Society of Oral and Maxillofacial Surgeons is presented in recognition of outstanding scholastic achievement in Oral Surgery in the senior class of Canadian faculties of dentistry.

This year's winners include: Dr. John Laba, Dalhousie University, Halifax, Nova Scotia; Dr François Blondeau, Université Laval, Québec, Québec; Dr. Harold Weiss, University of Saskatchewan, Saskatoon, Saskatchewan; Dr. Anne Tonisson, University of Toronto, Toronto, Ontario and Dr. Kenji Shimizu, University of British Columbia, Vancouver, British Columbia.

Use up 24% — Health program attracts dentists

Dr. Donald Cunningham, president of the Nova Scotia Dental Association, credits the province's children's dental health care program with attracting more dentists to rural areas.

According to Dr. Cunningham, the utilization rate of the program, established in 1974, has jumped 24 per cent in the last three years. Within the last year, close to 40 dentists have moved to areas like Springhill and Arichat.

Dr. Cunningham is reported to have said expectations are that more than 80 per cent of those eligible will be enrolled in the program in the near future.

Inner-city clinic

Round the clock care in Toronto

Now downtown Toronto hospitals have somewhere to send toothache patients — no matter what time of day or night.

Former Ottawa dentist, Dr. Peter Kuliak, has opened a 24-hour dental clinic on Richmond Street West close to five hospitals in the heart of the city.

The clinic is staffed by Dr. Kuliak, Jerry Isenberg and Lesley Harthen. Fees are within the guidelines of the Ontario Dental Association, said Dr. Kuliak.

Its 24-hour service will provide patients with immediate care instead of temporary relief to tide them over until regular dental office hours.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on June 30, 1979:

Common Stock Fund	$43,368
Fixed Income Fund	$22,708
Guaranteed Fund	$15,959
Balanced Fund	$12,087

Total assets (market value) of the plan were $34,648,567.

The previous month's figures, as of May 31, 1979, stood as follows:

Common Stock Fund	$41,424
Fixed Income Fund	$22,586
Guaranteed Fund	$15,840
Balanced Fund	$11,850

Total assets (market value) of the plan were $34,156,810.64.

For further information write to: Canadian Dental Service Plans Inc., 234 St. George Street, Toronto, Ontario M5R 2P2.

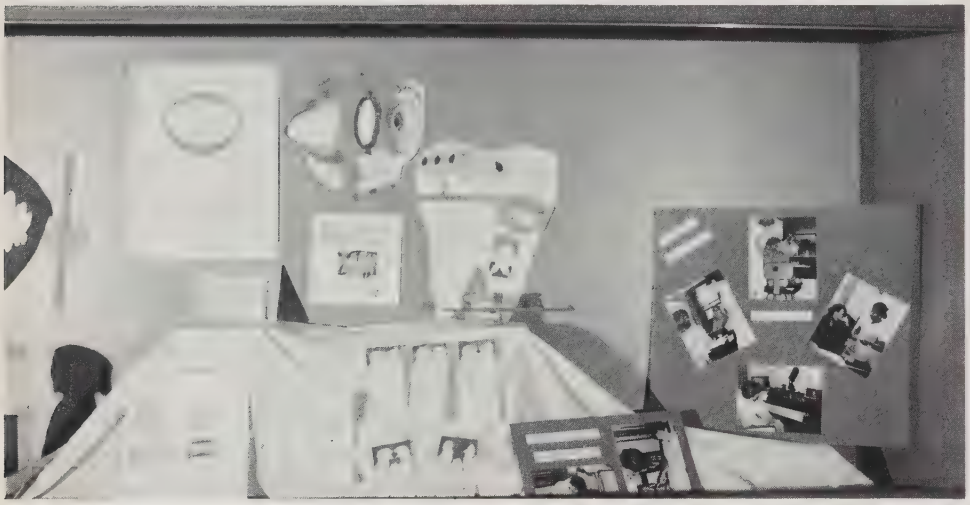
LES ACTUALITÉS

Le conférencier invité était le Dr Michael Wood

Une réunion conjointe de l'Association des prosthodontistes du Canada et de l'Ontario avait lieu dernièrement à Toronto. L'un des points saillants de cet événement a été la remise du titre de membre honoraire à vie de l'Association des prosthodontistes du Canada au Dr Ken Kerr, de Halifax, Nouvelle-Ecosse.

Le conférencier invité de la soirée était le Dr Michael Wood, fondateur du Service de médecine volante de l'Afrique orientale, dont le port d'attache est situé à Nairobi, au Kenya. Son allocution portait sur les difficultés qui se présentent quand on s'efforce de fournir des services de santé efficaces et d'un prix abordable dans les pays en voie de développement.

L'assistance a également pu entendre le Dr Gunnar Carlsson, de Suède, spécialiste de renommée internationale de l'articulation temporomandibulaire. Son exposé s'intitulait "Temporomandibular Joint: Function and Dysfunction."



Afin de promouvoir la santé dentaire, les étudiants en hygiène dentaire au CEGEP de St-Hyacinthe au Québec présentent chaque mois une exposition différente au foyer du Collège.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 juin 1979.

Fonds d'actions ordinaires	$43,368
Fonds à revenu fixe	$22,708
Fonds garanti	$15,959
Fonds de placement équilibré	$12,087

L'avoir total (valeur marchande) du régime s'élevait à $34,648,567.

Au 31 mai 1979, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$41,424
Fonds à revenu fixe	$22,586
Fonds garanti	$15,840
Fonds de placement équilibré	

L'avoir total (valeur marchande) du régime s'élevait à $34,156,810.64.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

Le conseil

la Société dentaire de Montréal . . .

Le Conseil d'administration de la Société dentaire de Montréal pour l'année 1979-1980: Dr Yvon Desmarais, président; Dr Gilles Bélisle, président-désigné; Dr Marcel Labelle, vice-président; Dr Emanuel Steverman, trésorier; Dr André Huot, trésorier-adjoint; Dr Jean-Guy Lahaie, secrétaire; Dr Michel Brousseau, secrétaire-adjoint; Dr Jean Beauchemin, publiciste; Dr Laval Couture, aviseur; Dr Richard Taché, directeur du bulletin; Dr Rémy Dupuis, Dr Michel Plamondon, Dr Louise Lachapelle et Dr Pierre Rochon, conseillers.

Les réclamations ont été versées à 588 dentistes canadiens en 1978

Les réclamations versées en vertu du programme d'assurance des dentistes canadiens en 1978 se sont élevées à $3,378,577, selon un rapport préparé récemment par la Canadian Dental Service Plans Inc.

Au moment où l'année s'est terminée, le processus de règlement était en branle pour des réclamations additionnelles totalisant plus de $150,000.

Les réclamations ont été versées à 588 dentistes, soit environ un sur dix-huit à travers le pays.

Elles ont été formulées en vertu des neuf différents régimes englobés par le programme. Toutefois, plus de 60 pour cent étaient fondées sur des raisons d'invalidité et relevaient des régimes d'invalidité à long terme et de remboursement des dépenses de bureau.

Pour ce qui est du nombre, les réclamations portant sur des dégâts à l'équipement de bureau venaient au deuxième rang, représentant près de 20 pour cent du total.

Les statistiques révèlent qu'environ 85 pour cent des dentistes canadiens souscrivent à au moins l'un des régimes compris dans le Programme d'assurance des dentistes canadiens.

Présentation du comité de rédaction

. . . Ann Hammell

La directrice des communications à l'Association Dentaire Canadienne est Mlle Ann Hammell, diplômée en journalisme de l'Université Carleton.

Avant d'entrer au service de l'ADC, Mlle Hammell était directrice de l'information à l'Association Pulmonaire du Canada. Au cours de sa carrière, elle a été correspondante parlementaire, commentatrice à la radio et coordonnatrice de défilés de mode. Elle a également rédigé discours et textes de tous genres pour la radio et la télévision.

Mlle Hammell a déjà assumé la présidence du Women's Advertising and Sales Club et celle du chapitre d'Ottawa de l'Association des diplômés de l'Université Carleton.

Dans son rôle de directrice des communications, Mlle Hammell poursuivra la mise en oeuvre du programme de publications de l'ADC et dirige actuellement une réorganisation du Journal. Elle est responsable des rapports avec les journalistes et coordonne les communications au sein de l'Association Dentaire Canadienne.

. . . la rédactrice

Le Journal de l'Association Dentaire Canadienne est maintenant sous la direction de Liz McKee, une diplômée de l'Université Queen's en anglais et en sciences politiques. Liz oeuvre dans le domaine du journalisme depuis dix ans. Elle a dirigé les pages sportives d'un journal, a été rédactrice de publications d'affaires de Maclean-Hunter Ltd. et a rédigé à titre indépendant des articles pour des publications éducatives.

Mme McKee a enseigné l'anglais comme langue seconde et a siégé au conseil d'administration de plusieurs organisations communautaires.

A titre de rédactrice en chef du Journal, Liz est responsable de recueillir les nouvelles pertinentes dans tous les coins du pays, d'établir les thèmes de la revue et d'en assumer la mise en page.

La fluoration de l'eau n'a rien à voir avec la pollution par le fluorure

On a beaucoup parlé, depuis quelque temps, des émissions de fluorure provenant d'une usine de l'Etat de New York et du danger qu'elles posent pour la santé des Indiens de la réserve de l'Ile de Cornwall. Cette publicité a amené certaines personnes à s'interroger sur la sécurité de la fluoration de l'eau potable dans certaines municipalités, mesure visant à combattre la carie dentaire.

Il est vrai que n'importe quel élément de la nature peut être nocif en quantité excessive. Il est tout aussi inexcusable de polluer l'air et le sol au moyen d'émanations contenant de telles quantités excessives d'un élément. L'Association Dentaire Canadienne est tout aussi opposée à la pollution que tout autre organisme soucieux de la santé publique.

Or, ce genre de pollution n'a rien en commun avec la fluoration de l'eau. Cela fait plus de trente ans que des expériences révèlent que la présence d'environ une partie de fluor dans un million de partie d'eau potable occasionne, en moins de quelques années, une diminution remarquable de la fréquence des caries dentaires. Dans ces proportions, le fluor devient un élément essentiel qu'on peut absorber de façon quotidienne pendant toute sa vie sans risque.

L'ADC recommande la fluoration de l'eau potable dans tous les cas où cet élément n'y est pas présent en quantité suffisante à l'état naturel. L'adoption de cette mesure profitera au bien-être de tous et peut réduire de moitié les frais de soins dentaires des enfants.

La profession au nord du Québec

Une fois prise la décision d'aller exercer sa profession dans une région isolée du Québec, le Dr Bruce Oliver n'avait que l'embarras du choix. Peu de temps après avoir terminé ses études en dentisterie à l'Université McGill, le Dr Oliver décida, de concert avec un camarade de classe, le Dr Raymond Bédard, d'aller établir une pratique à Dolbeau, petite localité à environ 560 km au nord de Montréal.

Avec leur arrivée, les docteurs Oliver et Bédard apportèrent un renfort très apprécié aux deux dentistes qui s'efforçaient de répondre aux besoins d'une population de près de 14,000 habitants.

Le Dr Oliver admet que le choix de Dolbeau a été complètement accidentel, mais lui et son collègue, le Dr Bédard, affirment maintenant qu'ils s'y plaisent beaucoup.

Le soir de leur arrivée, ils furent accueillis à bras ouverts par la Chambre de commerce ainsi que par plusieurs résidents qui les aidèrent ensuite à rénover les locaux où ils ont établi leur bureau.

Les lauréats

Le prix de la Société canadienne des spécialistes en chirurgie buccale et maxillofaciale est décerné en récompense de réalisations exceptionnelles en matière d'études universitaires en chirurgie buccale, à l'intention des élèves finissants des facultés de dentisterie au Canada.

Les lauréats de cette année sont le Dr John Laba, Université Dalhousie, Halifax (N.-É.); le Dr François Blondeau, Université Laval, Québec; le Dr Harold Weiss, Université de la Saskatchewan, Saskatoon; le Dr Anne Tonisson, Université de Toronto, Ontario; et le Dr Kenji Shimizu, Université de la Colombie-Britannique, Vancouver.

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*"The Cutting Rates and Durability of Diamond Stones," Reder, B.S. & Eames, W.B., JDR, V. 55, Issue B, February 1976. Copies of report available on request.

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BILL 84 and its implications

Dr. Clyde Covit, a consultant to the QDSA negotiating team, continues his series on Bill 84 — and the Quebec Health Insurance Plan. Details about earlier negotiations leading to Bill 84 are contained in articles in the February and March editions of the CDA Journal.

The Quebec National Assembly has passed Bill 84. A date for implementation, in whole or in part, is still to be set, and regulations stemming from the Bill have not been adopted. While it is impossible to evaluate in detail the implications the law will have for health professionals in Quebec, the legislative measures leave no doubt as to the influence it will have on professional practice or the new obligations it will impose on health professionals.

In brief, Bill 84 gives the Quebec Health Insurance Board vigorous powers to apply the Health Insurance Plan through verification, controls, mechanisms, levers and penalties which together constitute a very constraining administrative apparatus.

Four professional associations, including the Quebec Dental Surgeons Association, earlier presented basic objections to the projected Bill to the Parliamentary Commission on Social Affairs, resulting in important modifications.

There is, however, a threat to health professionals unless they remain constantly on the alert. This article is a preliminary assessment of the final version of the Bill.

PROFESSIONAL ASPECT

During discussions preceding adoption of the draft Bill, several members of the Quebec National Assembly emphasized the high degree of public satisfaction (80 per cent) with the delivery of health care.

Consequently, the health professionals had every right to expect the Bill to provide something other than a measure to significantly increase the administrative annoyances; the move to strengthen the Quebec Health Insurance Board's verification procedures and the action to strip away any real reasons to successfully contest arbitrary decisions by the Board.

ADMINISTRATIVE ANOYANCES

A) Compulsory presentation of the Health Insurance Card

The draft of the Bill made payment to the health professional subject to the compulsory presentation by the beneficiary of his/her card. There were to be no exceptions.

The Bill in its final form maintains its compulsory presentation but allows the following exceptions:

— if the beneficiary is less than one year old;
— if the beneficiary, at the time the insured services were received, was in a state requiring emergency treatment;
— if the beneficiary is over fourteen years of age and less than eighteen and is receiving the insured services without parental authorization;
— if the beneficiary is in a nursing home or in a chronic care hospital; and
— in circumstances and cases specified by regulations.

B) Survey

The draft Bill obliged the Board to conduct periodic surveys by random sampling.

In spite of the health professionals vigorous protest the final Bill still includes this provision which is bound to stain the competence of the health professional and to undermine the confidence which exists between the professional and the patient. This constitutes an unacceptable intrusion into the privacy of the beneficiary.

POWERS OF THE HEALTH INSURANCE BOARD

A) Discretion of the Board

The draft Bill authorized the Board to refuse payment of an insured service or if payment has been made, to recover payment, if it claimed that such service had not been furnished in conformity with the law.

The final version of the Bill allows that a disagreement may be taken to arbitration. In other cases, such as that of a service not furnished at all, not furnished by the health professional himself, falsely described, or not insured, redress is allowed only through legal proceedings. In all cases, the Board must justify its decision.

B) Limitation

The final version of the Bill grants the Board the right to refuse payment, to reimburse itself by compensation or other means, in the case of any service claimed or paid when such service has been furnished within a period of 36 months preceding the Board's decision to institute proceedings against the health professional.

The health professional has only a six month period to institute legal proceedings against the Board beginning on the day each insured service was provided. This limit is extended two years in the case of petition against the Board by the arbitration mechanism.

The Bill grants the Board protection it refuses the health professional and prohibits the health professional from effectively defending himself.

C) Burden of Proof

The final version of the Bill is especially unfair to the health professional in that it imposes on him the obligation to prove in civil or criminal court that the Board's decision is not justified.

D) Documents

The Bill in its final form provides that a health professional must furnish, on demand of the executive director of the Board, not only information about,but those documents required by the Board to appraise a statement of fees or claim for payment.

Although the Bill restricts the information and documents which may be required, it does provide for regulations to determine the kind of information and the context of pertinent documents that the health professional must keep and, when required, produce for the Board.

Thus, the Bill raises the important question of keeping and imparting documents constituting part of a medical chart, and, in this way affects the very form and integrity of the chart.

E) Exclusion of a Health Professional

The approved Bill maintains compulsory exclusion of a health professional found guilty of a criminal infraction concerning claims for insured services for a period of three months for a first offence and six months for any subsequent infraction.

REVISORY COMMITTEE

A) Composition

The Committee will not be entirely constituted of peers as the sixth member will be a lawyer nominated on the recommendation of the Office des Professions.

B) Jurisdiction

As it is now in effect, the Bill extends the Committee's jurisdiction to include the need and frequency of services rendered, as well as the matter of abusive dispensation of services.

C) Powers of the Board

The final version of the Bill introduces

a new system as the Board must render a decision following the recommendation of the Committee. The Board may, after expiry of the time limit for appeal, obtain confirmation of its decision and execute judgement under the authority of the appropriate court.

The professional may appeal the Board's decision within the time limit set forth. The appeal does not suspend execution of the decision unless a member of the Social Affairs Commission orders otherwise in a case of emergency. On appeal, the burden of proof in this case falls on the health professional.

The system adopted by the Bill gives no authority to the Revision Committee. At best, if the Board does not ratify the Committee's recommendation, it cannot proceed against the health professional by adjustment and, on appeal, it must assume the burden of proof.

SYNDICATE ASPECT

Negotiation

A) Arbitration Board

In working the final Bill, the legislators recognized part of the representations made to them on arbitration and prescribed that differences relevant to an agreement shall be settled by the Arbitration Board. However, the Bill also permits the civil or criminal code to be invoked in litigation not deriving exclusively from an agreement. For example, in the case of the service — not rendered, not rendered by the professional personally, falsely described, or not considered to be insured.

B) Additional Charges

The draft of the Bill further restricted the field of negotiation by providing that a health professional may receive no payment whatsoever for a non-insured service performed in connection with an insured service, unless stipulated by regulation.

The final Bill maintains this interpretation in the case of a service which is accessory to an insured service while permitting deviation therefrom by means of an agreement.

CONTESTATION

In draft form the Bill authorized the adoption of an Order-In-Council to stop any planned movement of non-participation by health professionals.

The Bill now maintains the possibility of such an Order-In-Council and provides that non-participation health professionals will become disengaged. Moreover, the Bill provides for complicated and burdensome payment procedures upon disengagement to the point where disengagement can no longer be used as a useful means of contestation.

The only concession achieved in this area is that the Order-In-Council may remain in effect for no longer than ninety days.

THE BENEFICIARY

When the four professional associations appeared before the Parliamentary Commission on Social Affairs, the health professionals asked the Minister to reject the plan of compulsory presentation by the beneficiary of the Health Insurance Card. The health professionals argued that this act carried regulations to an extreme for the beneficiary and at the same time converted health professionals into police agents of the Health Insurance Plan. The Minister ignored this proposal just as he rejected, with a wave of the hand, the basic objections of the health professionals to surveys by random sampling. The health professionals surveys would interfere with the privileged relations which exist between the health professional and the consumer.

If the debatable decisions decreed by the Minister concerning the consumer should have disastrous results leading to public dissatisfaction with the system of health care delivery, it will not be for lack of warning. Only time will tell.

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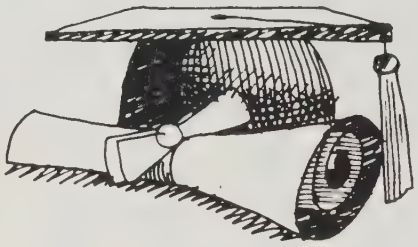

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pril 28th to May 1st, 1974. Co-sponsored by Department of Pedodontics, University of Maryland and by the Division of Dentistry, U.S. Department of alth, Education and Welfare. For a complete report on proceedings, write to Medical Department, Warner-Lambert (Canada) Limited, 2200 Eglinton e. East, Scarborough, Ontario M1K 5C9.

First discovered in 1895, the Canadian media rediscover X RAYS in 1979 . . .

Dr. Axel Ruprecht, author of the following article, is assistant professor and head, Department of Diagnosis and Oral Radiology, at the University of Saskatchewan. He is the Journal Specialty contributor in Radiology.

In 1895, German physicist Wilhelm Conrad Roentgen discovered x rays.[4] In 1979, the media in Canada rediscovered x rays.

When Roentgen made his discovery, he recognized certain characteristics that made them different from other known rays. They could pass through matter and affect chemical substances (such as photographic emulsion) on the other side — a fact quickly appreciated by both the medical and dental professions. It was only a matter of weeks that radiographs of the body were being produced.[3] This was the beginning of modern radiology.

The first dental radiographs were crude and of little diagnostic value. It took up to 25 minutes (compared to approximately one second today) and a high radiation dose to produce early x rays. There was no protection for the machine operator and early practitioners of radiology have become known as 'radiation martyrs.'

Times have changed. Exposure levels are 1/1500 of what they were historically and health professionals do not use x rays indiscriminately. Students in dental schools are taught to respect x rays and to be aware of their possible side effects.

Use of the term "side effects" is deliberate. X rays can be compared to drugs — both are agents that can, in competent hands, provide patients with health care otherwise impossible and both drugs and x rays must be used with care because of their potential side effects.

No practitioner would give an injection of penicillin to a patient without examination. Likewise, no practitioner should make radiographs prior to examining a patient and deciding specifically what x rays are necessary. The patient should also be asked what x rays he has had recently so that duplicate radiographs are not taken. To do less is, at best, questionable practice. Ask yourself the question, "if I were the patient, would I still consider these films necessary?"

The most commonly used projections in dentistry today are bitewing films. Some dentists take these at each check-up (every six months) as a matter of routine. In some cases, the films are taken by the assistant before the dentist sees the patient. This is not only poor 'public relations' (patients object to receiving any form of treatment before being seen by the dentist), but it is an abuse of radiation. Such a routine can only result in the unnecessary irradiating of patients. There must be a reasonable expectation of gaining information not otherwise available that may influence treatment to merit radiographs.

Another common survey is the complete mouth series (CMS). It provides a useful method of determining the status of developing dentition by revealing many of the abnormalities unique to the jaws before they are large enough to be seen clinically (when treatment could be a major problem).

Again, the CMS should be taken only after the dentist has examined the patient and determined it is necessary. As a rule, these films are not needed more than once in five years and often a longer interval is acceptable. Individual consideration by the dentist is required when making this decision.

Pantomographic projection allows the dentist to see the whole of both arches and neighboring structures on one film. It is useful in patient education and is an easier check on developing dentition than the CMS but, detail and definition — visibility of fine structure — are better in the CMS.

Current research indicates that in many cases pantomographic projection is an acceptable alternative to the CMS if supplemented with bitewing films and selected periapical projections.[5] Many Canadian dental schools are adopting this method of radiological investigation.

In some patients, both a CMS and pantomographic survey are initiated. The dentist must always weigh the likelihood of information gained against the side effects of radiation to the patient when considering this combination.

" . . . doses dentists are dealing with are minor . . . "

But what are the levels of radiation to which patients are subjected and how significant are they?

No single number will give the acceptable dose for any one examination. It must be specified where the dose is measured and under what conditions. The same exposure will give several different measured levels of radiation in various areas of the body. Technique will also cause variations. The beam size (a maximum of 2.75 inches in diameter in Canada), focal film distance, amount of filtration, film quality and film speed are all important variables to be considered in determining the level of patient exposure.

These factors can vary so widely that the 1964 and 1970 "X ray Exposure Studies" (X.E.S.) showed 1,138 and 910 miliroentgens (mR) per exposure in the USA.[1] The recommended average levels are in the 500 mR range. Lower levels are easily achieved if fast film and proper processing are used.

Dose levels (not exposure levels, as mentioned above)

re the important measurements. Usually the thyroid land and ocular lens are the organs of most interest.

In a recent Japanese study[2] the dose to the lens for a itewing film was four to eight mRads and the dose to he thyroid gland was 15 to 30 mRads. The CMS ranges ere 263 to 1,250 MRads and 342 to 1,180 mRads to the ns and thyroid respectively. For pantomographic pro-ctions, the ranges were six to 12 mRads and 269 to 380 Rads (depending on the type of unit used).

This means that the doses dentists are dealing with re minor. The cataract dose for the lens is approximately 0 Rads (200,000 mRads). The dose to the thyroid from dental x ray is also minimal when compared to the vels that have caused the increase in thyroid tumors ported recently. These tumors were due to therapeutic oses to the thymus given about 20 to 30 years previous- — not to dental exposures.

". . . it's like putting four jugs out in a rainstorm . . ."

Skin dose figures frequently reported are not always ccurate because of the tendency to measure the dose at veral sites and then add them together. This is like put-ng four jugs out during a rainstorm, collecting one inch f water in each and then saying there were four inches f rain. What was collected, in fact, was one inch of water ver a larger area. Skin doses of radiation are often re-orted the same way. Neither can comparisons of dose vels of dental films, chest films or total body exposures, ch as may occur at nuclear reactors, be reasonably ade.

Still, this is not a justification for a haphazard approach the use of x rays. There is at least one study that indi-tes there may be a direct relationship between diag-ostic levels of exposure and a slight increase in the inci-nce of leukemia. Such studies, and simple common nse, indicate professional judgement must be used in escribing x rays.

No matter how remote the chance of damage from agnostic x-ray exposure, we owe it to our patients not add unnecessarily to that risk. Radiation levels must kept to a minimum and no unnecessary exposure to ny part of the body should be permitted. When making posures, the following guidelines should ensure that e dental profession is less open to challenge from the blic and government:

No film should be taken unless the dentist has examined the patient and decided the x ray is required.
Previous films should be obtained if possible.
Clear instructions should be given to auxillaries making the exposure.
The x-ray unit must be in good working condition, meeting all current standards (In most provinces a radiation health officer can be consulted).
The fastest film (and screen if applicable) should be used, consistent with good results.
Exposure settings should be correct. (Do not overexpose and underdevelop.)
Use lead aprons for the patient for intra oral and most extra oral exposures.
Use the long cone/paralleling technique (it covers less area).
Ensure the operator is competent to make the exposure.
Use a good darkroom, proper chemicals and accepted processing procedures as per manufacturers' directions.
Interpret all films under proper viewing conditions.

The best procedure to follow, as in most treatment situations, is to put yourself into the patient's position and ask: "How would I like to be treated?"

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Since their discovery in 1895, x rays have been one of the most valuable diagnostic aids used by medical and dental practitioners. The ability of x rays to penetrate soft tissues and bone of the human body makes it possible to "see" inside the body, and enable better diagnosis of physical conditions that would otherwise be difficult to identify and treat.

What Are X Rays?

X rays are electromagnetic radiation similar to radio waves or light, but with shorter wavelengths. They are produced in an x ray tube by directing a stream of fast moving electrons at a target (usually made of tungsten). The movement of the electrons gives them energy. When they strike the target, part of this energy is lost by the electrons and given off in a different form, namely, x rays. These x rays have certain characteristics in common with light. Just as light has the ability to pass through certain substances such as glass or plastic, x rays may pass through certain substances, including the human body. Both light and x rays have the ability to expose film. This latter feature allows the production of radiographs.

What Happens in a Dental X ray Examination?

In a dental examination, the tube of the x ray machine is positioned so that when it is turned on, a beam of x rays will pass through the area in which the dentist wishes to make a diagnosis. An x ray film is placed on the other side of the area being investigated and it records, in the form of a radiograph, the condition of the bone, teeth, and some soft tissues in this area.

Two things occur when the x ray beam reaches the patient. Some of the x rays pass right through the patient, while others are absorbed or scattered by the patient. While x rays can, to a degree, penetrate a material, they will pass more readily through the soft tissue of the cheeks and gums than through the denser and more absorbing tissues of the teeth and bone. On a developed film or radiograph, the cheek and gums will appear darker than the images of the teeth and bone — these will appear almost white. Areas of tooth decay or other disease processes will appear as areas of intermediate gray, or as changes in the pattern of the bone.

Are X rays Safe?

X rays, like drugs, have the potential for damaging healthy cells and tissues. They may cause biological damage primarily due to ionizing effects (their ability to remove electrons from atoms in tissue). Although not all interactions are harmful, some may result in injury or death in a number of cells. During a single radiographic examination the radiation exposure received by an individual is generally low, and thus only an insignificant number of cells are affected. The body will replace or repair most of these damaged cells. Usually this is not important because of the number of cells involved, but the effect of even low radiation exposure over long periods of time can accumulate and may represent a hazard to health.

The health hazard most people worry about is cancer. Compared with the spontaneous incidence of cancer, the possibility of incurring it as a result of a diagnostic x ray examination is extremely small, influenced by the amount of radiation received, the volume of the body through which the x rays pass, and susceptibility of the organs in this area. There are other factors that may also be involved, but these are the major ones.

When Should Dental Radiographs Be Taken?

Some individuals may believe that radiographs of teeth should be taken on a regular basis. Most members of the dental profession now consider that the making of "routine" radiographs as part of a dental examination, especially prior to a clinical examination, is not consistant with accepted practice. After careful examination of a patient, the dentist may decide that radiographs to aid in diagnosis and treatment planning are necessary. It is the dentist's responsibility to weigh the reasons for and against the taking of a radiograph, and to advise the patient accordingly.

Safety Standards For Dental X Ray Machines?

Dental x ray units sold in Canada are required to conform to strenuous standards of safety which were proclaimed in force as regulations under the Radiation Emitting Devices Act of January 1973. In November

1977 the regulations were amend-
. The Canadian Government is
sponsible primarily for specific
quirements concerning the basic
sign of dental x ray machines,
id in that way can assess how
uipment will be constructed, and
ll perform. Provincial Govern-
ents through their radiation pro-
ction bureaus, and through the
ensing bodies which regulate pro-
ssions, have the responsibility for
termining the accepted procedures
hich are used in the treatment of
tients.

Health Protection Branch in-
ectors regularly inspect the prem-
es of plants in Canada that man-
acture or assemble radiation emit-
ng devices, including dental x ray
achines, to insure that manufac-
rers comply with the regulations.
addition, samples of dental x ray
achines taken from manufacturers,
porters, and distributors are
utinely tested in the laboratories
the Radiation Protection Bureau
insure that x ray equipment meets
e required standards. As well, voluntary non-governmental agencies, such as the Canadian Standards Association attempt to insure that there is some uniformity in accepted standards among countries that co-operate internationally in the manufacturing and distribution of x ray units.

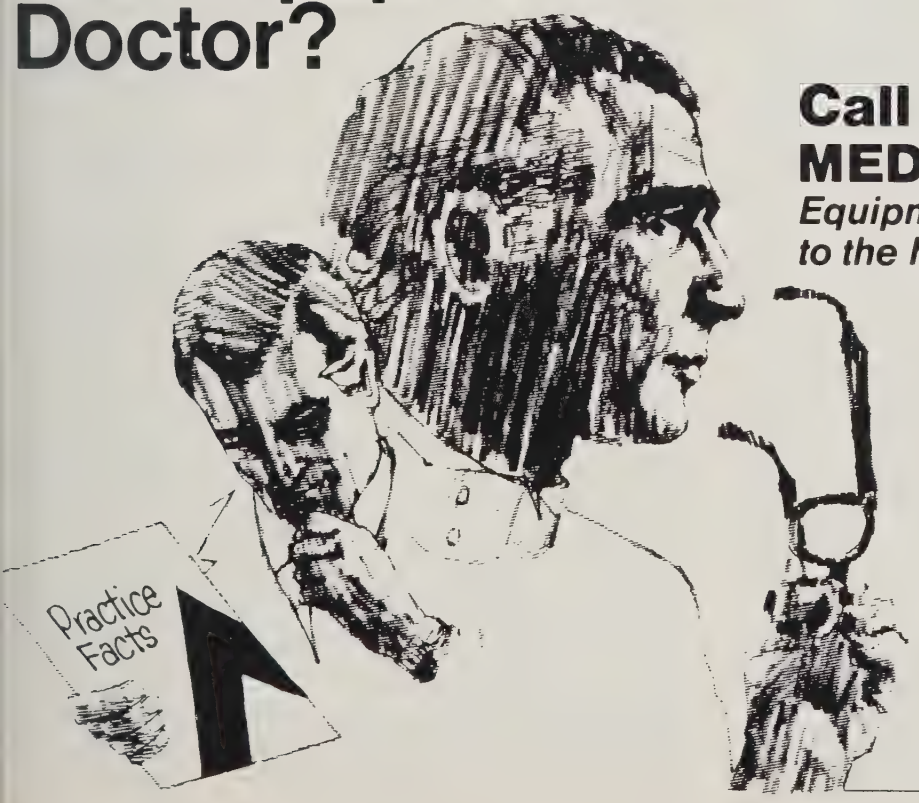
What Else Can Be Done to Reduce Risks?

The dentist, because of his professional training is in a unique position to reduce radiation exposure to the patient. He does this by insuring that justified radiographs are produced with a minimum of exposure to the patient through maintenance of his x ray equipment, use of proper operating techniques, the use of accepted protective devices and techniques, good film processing, and continuing education.

SUMMARY

1. The dentist through his professional training, continuing education, and through guidance received from his national body — The Canadian Dental Association, with the co-operation of The Canadian Academy of Oral Radiology is in the best position to insure that his patients receive the utmost advantage through the production of good radiographs when indicated, while keeping patient exposure to a minimum.
2. The patient should not insist on a radiograph when one is not indicated, but should not refuse a needed x ray examination.
3. Radiographic examinations should be carried out using adequate radiation protection devices, such as lead aprons.
4. X rays have the potential for damaging healthy cells, for this reason, all unnecessary exposure should be avoided. This is accomplished by having x ray units under the control of a qualified professional such as your family dentist, who is able to make a professional decision as to whether radiographs are required.

Thinking about new equipment Doctor?



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. . . En 1979 les media d'information canadiens redécouvrent les rayons X

par le docteur Axel Ruprecht

C'est en 1895 que le physicien allemand Wilhelm Conrad Roentgen découvrit les rayons X. Presque un siècle plus tard, en 1979, les media d'information canadiens redécouvrent à leur tour ces rayons.

Au moment de sa découverte, Roentgen identifia certains caractères particuliers qui différenciaient les rayons X des autres types de rayons alors connus. Il s'aperçut qu'ils pouvaient passer à travers certaines matières et affecter des substances chimiques (comme une émulsion photographique) placées derrière ces objets. Cette propriété devint rapidement un fait très apprécié par les médecins et les dentistes. Quelques semaines suffirent pour la mise au point du procédé permettant de prendre des radiographies du corps humain. C'était le début de la radiologie moderne.

Les premières radiographies dentaires étaient grossières et de peu d'utilité en matière de diagnostic. Il fallait jusqu'à 25 minutes pour en obtenir une (à comparer d'environ une seconde maintenant) et il en résultait une forte dose de radiations. L'opérateur de la machine ne jouissait d'aucune protection et les pionniers de la radiologie ont ainsi acquis le titre de "martyrs de la radiologie".

Les temps ont changé. Les niveaux d'exposition ont fléchi à 1/1500e de ce qu'ils étaient et, de nos jours, les professionnels de la santé ne recourent aux rayons X qu'après mûre réflexion. En outre, les étudiants en dentisterie apprennent à respecter les rayons X et à devenir conscients de leurs effets secondaires.

L'utilisation du terme "effets secondaires" n'est nullement fortuit. En effet, on peut comparer les rayons X aux médicaments: dans les deux cas, leur administration par un professionnel compétent peut procurer au patient des bienfaits qui seraient autrement impossibles.

Le type de projection le plus utilisé en dentisterie est la radiographie interproximale. Certains dentistes y recourent à chaque examen (c'est-à-dire deux fois par année). Dans certains cas, c'est un assistant dentaire qui prend ces radiographies avant que le dentiste ne vienne examiner son patient. Cette pratique est non seulement déplorable au point de vue des "relations publiques", mais elle peut exposer le patient à un niveau excessif de radiations sans justification. Les radiographies ne sont souhaitables que dans les cas où on peut ainsi obtenir, en toute probabilité, des renseignements importants pour le traitement et impossibles à obtenir d'une autre façon.

Une autre utilisation commune des rayons X est la radiographie buccale complète. Il s'agit d'une façon utile de vérifier le développement de la dentition grâce à l'identification de nombreuses anomalies possibles des mâchoires avant qu'elles ne soient assez prononcées pour être décelées au moyen d'un examen clinique (alors que le traitement pourrait poser de sérieuses difficultés).

Le même principe s'applique alors: ces radiographies ne devraient pas être prises avant que le dentiste n'ait examiné le patient. Règle générale, ces radiographies ne se révèlent utiles qu'à tous les cinq ans et, souvent, un intervalle plus long est acceptable.

La projection pantomographique permet au dentiste d'obtenir, sur une seule pellicule, une photographie des deux arches et des structures environnantes. Il s'agit d'un instrument utile pour l'éducation du patient et d'un moyen plus facile de vérifier le développement de la dentition que la radiographie buccale complète. Par contre, cette dernière technique procure une image plus précise et plus détaillée.

Selon les recherches actuelles, la projection pantomographique remplace de façon adéquate l'examen radiographique buccal complet, pourvu qu'on la complète par des pellicules interproximales et certaines projections périapicales. De nombreuses écoles canadiennes de dentisterie adoptent cette méthode d'examen radiologique.

Dans le cas de certains patients, le dentiste recourt tant à l'examen pantomographique qu'à la série complète de radiographies buccales. Lorsqu'il envisage de recourir à ces deux examens combinés, le dentiste doit tenir compte des effets secondaires possibles par rapport à l'utilité des renseignements ainsi recueillis.

UNE PERSPECTIVE

Quels sont donc les niveaux de radiations auxquels les patients sont soumis et quels en sont les effets?

On ne peut quantifier avec exactitude la dose tolérable pour un examen. Il faut déterminer avec précision l'endroit du corps où l'on mesure la dose et dans quelles conditions particulières. En effet, la même exposition donnera lieu à diverses mesures du niveau de radiations selon les différentes régions du corps. On constatera également des variations selon la technique utilisée. Le diamètre du faisceau (2.75 pouces au maximum dans notre pays), la distance focale de la pellicule, le degré de filtrage, la qualité et la vitesse de la pellicule constituent des variables importantes dont il faut tenir compte quand on détermine le niveau d'exposition auquel le patient est soumis.

En effet, ces facteurs peuvent varier de façon si considérable que deux études des expositions aux rayons X, réalisées aux États-Unis en 1964 et en 1970, ont révélé des niveaux de 1,138 et de 910 milliroentgens (mR) par exposition. Or, les niveaux recommandés s'établissent aux environs de 500 mR. On peut obtenir des niveaux encore plus bas en recourant à des films rapides et à de bonnes techniques de développement.

Ce sont les doses, et non les niveaux d'exposition, qu'il est important de mesurer. La glande thyroïde et le cristallin de l'oeil sont les organes qu'il importe de surveiller de près.

Lors d'une étude réalisée dernièrement au Japon, la dose subie par le cristallin pour une pellicule interproximale s'échelonnait de quatre à huit mRads, alors que la glande thyroïde était exposée à une dose de 15 à 30 mRads. Pour une série complète de radiographies buccales, les doses variaient de 263 à 1,250 mRads pour le cristallin et de 342 à 1,180 mRads pour la thyroïde. Quant aux projections pantomographiques, les doses s'échelonnaient de six à 12 mRads (selon le genre d'appareil utilisé).

On constate donc que les doses courantes en dentisterie sont mineures. La dose suffisante pour provoquer une cataracte du cristallin est d'environ 200 Rads (200,000 mRads). Quant à la dose que subit la thyroïde par suite d'une radiographie dentaire, elle est aussi minimale quand on la compare aux niveaux de radiations qui ont entraîné l'augmentation récente du nombre de tumeurs de la thyroïde. Ces tumeurs étaient dues à des irradiations thérapeutiques du thymus faites 20 à 30 ans plus tôt, et non à des radiographies dentaires.

Les doses de radiations affectant la peau, dont on fait souvent état, ne sont pas toujours précises, car on a tendance à mesurer la dose à plusieurs endroits, puis à additionner les chiffres obtenus. C'est comme si on plaçait quatre récipients à l'extérieur pendant un orage et, après avoir recueilli un pouce d'eau dans chacun, affirmer qu'il est tombé quatre pouces de pluie. De fait, on a simplement recueilli un pouce de pluie sur une surface plus étendue. Or, on suit fréquemment la même technique pour mesurer les doses d'exposition de la peau. (De même, on ne peut faire de comparaisons logiques entre les doses dues à des radiographies dentaires, à des radiographies pulmonaires ou à des fuites de radiations provenant d'un réacteur nucléaire et affectant tout le corps.)

Ce n'est toutefois pas une raison pour recourir aux rayons X de façon irréfléchie. Il y a au moins une étude révélant qu'il pourrait y avoir un lien direct entre l'exposition aux rayons X pour fins de diagnostic et une légère augmentation de la fréquence de la leucémie. L'utilisation des rayons X doit donc être fondée sur le jugement solide d'un professionnel.

Les niveaux de radiations doivent être tenus au minimum et on devrait catégoriquement éviter d'exposer inutilement toute partie du corps humain. En suivant les principes directeurs suivants, la profession dentaire sera moins sujette à des critiques de la part du public ou d'organismes gouvernementaux:

1. Aucune radiographie ne devrait être prise avant que le dentiste n'ait examiné le patient et n'ait déterminé que cette mesure est vraiment nécessaire.
2. Dans tous les cas où cela est possible, le dentiste devrait se procurer les radiographies antérieures du patient.
3. Les assistants qui prennent les radiographies devraient bénéficier de directives claires et détaillées.
4. L'appareil à rayons X devrait être en bon état de fonctionnement et satisfaire à toutes les normes actuelles (on peut consulter un responsable de la radioprotection dans la plupart des provinces).
5. On devrait recourir aux films les plus rapides (et aux filtres le cas échéant), pourvu qu'ils procurent les résultats voulus.
6. Les réglages d'exposition devraient être exacts (ne pas surexposer et obtenir des clichés insuffisamment développés).
7. Utiliser des tabliers de plomb pour le patient dans le cas des expositions intrabuccales et dans la plupart des expositions extra-buccales.
8. Recourir à la méthode du cône long en parallèle (la zone exposée est moins grande).
9. Veiller à ce que l'opérateur de l'appareil à rayons X soit compétent.
10. Utiliser une bonne chambre noire, des produits chimiques de bonne qualité et les méthodes de développement recommandées par le fabricant.
11. Interpréter tous les clichés grâce aux bons appareils de visionnement.

La meilleure attitude à adopter est encore de se mettre à la place du patient et de se demander: "Est-ce que c'est bien le genre de traitement que j'aimerais recevoir?"

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les rayons X . . .

Il y a des mesures pour limiter les risques

Depuis leur découverte, en 1895, les rayons X ont été un des auxiliaires les plus précieux dans l'établissement des diagnostics qu'aient pu uitiliser les médecins et les dentistes. La capacité qu'ont les rayons X de pénétrer les tissus mous et les os permettent de "voir" à l'intérieur du corps et de mieux diagnostiquer des affections qu'il serait difficile, sans ces précieuses images, de déceler et de traiter.

NATURE DES RAYONS X

Les rayons X sont des radiations électromagnétiques semblables aux ondes radio ou à la lumière, mais leur longueur d'onde est plus courte. Ils sont engendrés dans le tube à rayons X par la projection d'un flot d'électrons rapides sur une cible (généralement en tungstène). Le déplacement des électrons se traduit en XX énergie, dont une partie est diffusée sous forme de rayons X au moment où le faisceau atteint la cible. Ces rayons X ont certaines caractéristiques communes avec les rarayons lumineux: tout comme ces derniers peuvent traverser certaines substances, comme le verre et le plastique, les rayons X passent à travers le corps humain. Les deux types de rayons sont également capables d'exposer une pellicule photographique: c'est de là que nous viennent les radiographies.

L'examen aux rayons X chez le dentiste

Lorsqu'on veut radiographier les dents, la tête du tube à rayons X est placée de sorte que lorsque l'appareil est en marche, le faisceau de rayons X est dirigé vers la zone à radiographier. On place une pellicule radiographique derrière la zone soumise à l'examen. En raison de sa sensibilité aux rayons X, cette pellicule donne une image exacte de l'état des os, des dents et des tissus mous: c'est ce qu'on appelle une radiographie dentaire.

Lorsque le faisceau de rayons atteint le patient, il se passe deux choses: une partie des rayons traverse les tissus, l'autre partie est absorbée et dispersée. Bien que les rayons X puissent à un certain degré pénétrer tous les matériaux, il leur est plus facile de passer à travers les tissus mous des joues et des gencives qu'à travers la substance plus dense et plus absorbante des dents. Le faisceau de rayons qui atteint la pellicule rend compte de ces différences de densité. Lorsque la pellicule est développée, les gencives se dessinent en noir tandis que les dents et les os paraissent d'une teinte plus claire. Les zones cariées d'une dent ou les manifestations de toute autre affection s'inscriront en zones de différentes teintes de gris, de même que les anomalies dans le tissu osseux.

Les rayons X sont-ils dangereux?

Les rayons X, tout comme les médicaments, sont capables de léser les cellules et les tissus sains. Ils causent des dommages principalement parce qu'ils ont un effet ionisant, c'est-à-dire tarce qu'ils peuvent détacher des électrons des atomes. L'ionisation peut provoquer des lésions ou même la mort des cellules. Lors d'un examen aux rayons X, le sujet n'est généralement exposé qu'à une faible dose de rayonnement et seulement un nombre insignifiant de cellules sont endommagées. L'organisme remplacera ou réparera la plupart de ces cellules mais pas toutes. Par conséquent, les effets de petites doses de radiations peuvent s'accumuler avec le temps ce qui représente un danger pour la santé.

Le risque de cancer est celui dont les gens s'inquiètent le plus. Si l'on considère l'incidence spontanée des cas de cancer, la possibilité de souffrir d'un cancer à la suite d'un examen radiologique de diagnostic est extrêmement faible. Les risques de subir des dommages pouvant engendrer un cancer dépendent principalement des éléments suivants: la *quantité de radiations reçue;* le volume de l'organisme qui absorbe les rayons X; et la sensibilité des organes radiographiés.

Cependant, plusieurs autres facteurs entrent aussi jeu. Il en résulte que les risques associés à un examen radiologique sont minimes, il est peu probable qu'il cause des dommages. Si le médecin ou le dentiste a de bonnes raisons de prendre des radiographies, les avantages d'un tel procédé sont beaucoup plus importants que le risque qu'il comporte.

Quand faut-il prendre des radiographies?

Certains estiment que le dentiste devrait radiographier leurs dents de façon périodique. La plupart des dentistes sont maintenant d'avis qu'il n'est pas recommandable de prendre des radiographies de routine lors d'un examen dentaire, surtout avant d'avoir fait un examen clinique minutieux. Après un examen poussé de la bouche du patient, le dentiste peut juger que des radiographies s'imposent pour confirmer son diagnostic ou planifier le traitement. C'est à lui de peser le pour et le contre et de conseiller son patient en conséquence. Le patient, pour sa part, ne devrait pas insister pour avoir une radiographie, mais plutôt laisser le dentiste en juger. Par contre, tout patient est en droit de mettre en doute la sagesse de prendre une radio-

graphie avant un examen clinique. La décision finale lui ncombe, mais il devrait se fier aux conseils de son dentiste.

Normes de sécurité applicables aux appareils à rayons X utilisés par les dentistes

Au Canada, les appareils à rayons X qui sont vendus ux dentistes doivent répondre à un code très strict de écurité. Ce code a été mis en vigueur en janvier 1973, en ertu des règlements afférents à la Loi sur les dispositifs mettant des radiations. En novembre 1977, les règlements nt été amendés pour tenir compte des progrès de la technologie et aussi pour corriger quelques lacunes au niveau es exigences, lacunes qui sont apparues lorsqu'il a fallu ppliquer les règlements.

C'est au gouvernement canadien qu'il revient de ormuler des exigences précises au sujet de la conception fondamentale des appareils de radiodiagnostic entaire, de leur construction et de leur fonctionnement ans des conditions normales. Les gouvernements proinciaux sont responsables, par l'entremise de leurs ureaux de radioprotection et de leurs organismes hargés de réglementer l'exercice des différentes proessions, de déterminer la qualité des méthodes de raitement des patients.

Les inspecteurs de la Direction de la protection de la nté visitent régulièrement les usines où l'on fabrique assemble des dispositifs émettant des radiations, y ompris les appareils de radiodiagnostic dentaire, afin e s'assurer que les fabricants obéissent aux règlements. De plus, le Bureau de la radioprotection procède systématiquement à des essais en laboratoire d'appareils de diodiagnostic dentaire prélevés chez les fabricants, les nportateurs et les distributeurs. En outre, certains rganismes non gouvernementaux à but non lucratif, lle l'Association canadienne des normes, veillent à que les divers pays qui collaborent à la fabrication et la distribution d'appareils à rayons X acceptent de se nformer à des normes relativement uniformes.

utres mesures pour limiter les risques

En définitive, grâce à sa formation professionnelle et son souci de se tenir à la fine pointe du progrès, c'est dentiste qui est le mieux en mesure d'assurer la proction de son patient contre une exposition excessive ux rayons X. Il élimine les radiodiagnostics qui ne sont as indispensables, réduit le temps d'exposition aux rations dans les cas essentiels, veille au bon entretien ses appareils à rayons X. Il recourt aux meilleures chniques de radiographie, utilise les dispositifs de otection voulus et le bon type de pellicule, et avant ut se tient sans cesse au courant des toutes dernières nnaissances en radiologie.

ESUME

Grâce à sa formation professionnelle, à l'éducation permanente et aux conseils de son association nationale, l'Association Dentaire Canadienne, et à la collaboration de l'Académie canadienne de radiologie buccale, c'est le dentiste qui est le mieux placé pour veiller à ce que les radiographies vraiment essentielles procurent le plus de bénéfice possible à son patient, tout en le protégeant de toute exposition excessive aux radiations.

2. Le patient ne devrait pas insister pour recevoir une radiographie dentaire lorsque cela ne s'impose pas, mais ne devrait pas non plus s'y opposer dans les cas nécessaires.
3. Les examens radiographiques devraient se faire en utilisant les meilleurs dispositifs possibles de protection, comme les tabliers plombés.
4. Les rayons X peuvent endommager des cellules saines: on doit donc éviter toute exposition non essentielle. Le meilleure protection est la compétence du jugement de votre dentiste, qui veille à ce que l'utilisation des rayons X se fasse de la façon la plus professionnelle possible.

Le Bill 84 et ses conséquences

"les professionnels de la santé demeurent quand même menacés, à moins qu'ils ne demeurent constamment sur leurs gardes . . . "

Le Dr Clyde Covit, conseiller auprès de l'équipe de négociateurs de l'ACDQ, poursuit sa série d'articles sur le Bill 84 et le Régime d'assurance-santé du Québec. Une description détaillée des négociations antérieures qui ont mené à l'élaboration du Bill 84 figurent dans des articles parus dans les numéros de février et de mars du Journal de l'ADC.

L'Assemblée nationale du Québec a adopté le Bill 84. La date de sa mise en vigueur n'a pas encore été déterminée et les règlements qui en émanent n'ont pas été adoptés. Il est impossible d'évaluer en détail les effets qu'aura la loi sur les professionnels de la santé au Québec, mais les mesures législatives ne laissent aucun doute quant à l'influence qu'elle exercera sur la pratique de la profession ou quant aux nouvelles obligations qu'elle imposera aux professionnels de la santé.

En résumé, le Bill 84 accorde à la Commission de l'assurance-santé du Québec des pouvoirs étendus relativement à l'application du Régime d'assurance-santé par l'intermédiaire de vérifications, de contrôles, de mécanismes, leviers et pénalités qui, ensemble, représentent un appareil administratif très restrictif.

Quatre associations professionnelles, dont l'Association des chirurgiens-dentistes du Québec, ont déjà exprimé leur opposition à certaines dispositions du projet de loi devant la Commission parlementaire des affaires sociales; leur intervention a donné lieu à d'importantes modifications.

Les professionnels de la santé demeurent quand même menacés, à moins qu'ils ne demeurent constamment sur leurs gardes. Le présent article constitue une évaluation préliminaire de la version définitive du bill.

ASPECT PROFESSIONNEL

Au cours du débat qui a précédé l'adoption du projet de loi, plusieurs membres de l'Assemblée nationale du Québec ont insisté sur le haut degré de satisfaction (80 pour cent) du public à l'égard des soins de santé.

Les professionnels de la santé étaient donc en droit de s'attendre à ce que le bill offre autre chose que des dispositions entraînant des tracasseries administratives accrues: les mesures visant à resserrer le processus de vérification de la Commission de l'assurance-santé du Québec et l'initiative qui a abouti à l'élimination de toutes les raisons valables permettant de contester les décisions arbitraires de la Commission.

TRACASSERIES ADMINISTRATIVES

A) Présentation obligatoire de la Carte d'assurance-santé

Le projet de loi stipulait que le bénéficiaire devait absolument présenter sa carte pour que soit autorisé le paiement au professionnel de la santé. Cette disposition ne prévoyait aucune exception.

La version définitive du Bill continue de rendre obligatoire la présentation de la carte, mais autorise les exceptions suivantes:

— si le bénéficiaire est âgé de moins d'un an;
— si le bénéficiaire était dans un état nécessitant des soins urgents au moment où les services couverts par l'assurance ont été rendus;
— si le bénéficiaire est âgé de plus de 14 ans, mais moins de 18 ans, et a reçu les services assurés sans l'autorisation de ses parents;
— si le bénéficiaire est traité dans une maison de santé ou dans un hôpital pour malades chroniques;
et
— dans les circonstances et les cas prévus par les règlements.

B) Sondage

Le projet de loi obligeait la Commission à exécuter des sondages périodiques au moyen d'échantillonnage au hasard.

En dépit des vigoureuses protestations des professionnels de la santé, la version définitive du Bill contient toujours cette disposition qui entachera inévitablement la réputation du professionnel de la santé et érodera la confiance du patient envers celui-ci. C'est là une invasion inacceptable de la vie privée du bénéficiaire.

POUVOIRS DE LA COMMISSION DE L'ASSURANCE-SANTÉ

A) Discrétion de la Commission

Le projet de loi autorise la Commission à refuser le paiement d'un service couvert par l'assurance ou à recouvrer ce paiement s'il a été exécuté, pourvu qu'on affirme que ce service n'a pas été rendu conformément à la loi.

La version définitive du Bill prévoit l'arbitrage en cas de dispute. Dans les autres cas, comme celui où un service n'a pas été rendu, n'a pas été exécuté par le professionnel de la santé lui-même, a été faussement décrit, ou n'est pas assuré, le seul droit de recours est la voie judiciaire. Dans tous les cas, la Commission doit justifier ses décisions.

B) Délai de prescription

La version définitive du Bill accorde à la Commission le droit de refuser le paiement, d'effectuer elle-même le remboursement par voie de compensation ou par un autre moyen, dans le cas de tout service réclamé ou payé quand ce service a été fourni dans les trente-six mois précédant la décision de la Commission d'entamer des procédures contre le professionnel de la santé.

Le professionnel de la santé dispose d'une période de six mois seulement pour entamer des procédures judiciaires contre la Commission, à compter du jour où chaque service assuré a été rendu. Ce délai est prolongé à deux ans dans le cas d'une requête contre la Commission par voie d'arbitrage.

C) Obligation de faire la preuve

La version définitive du Bill est particulièrement injuste à l'égard du professionnel de la santé, car elle lui impose l'obligation de prouver à un tribunal civil ou criminel (d'Assises) que la décision de la Commission n'était pas justifiée.

Le Bill accorde ainsi à la Commission

une protection dont ne peut jouir le professionnel de la santé et lui refuse la possibilité de se défendre efficacement.

D) Documentation

La version définitive du Bill prévoit que le professionnel de la santé est obligé de fournir sur demande, au directeur administratif de la Commission, non seulement les renseignements pertinents mais aussi toute documentation exigée par la Commission pour évaluer un état de compte (honoraires) ou une réclamation de paiement.

Bien que le Bill établisse certaines restrictions quant aux renseignements et à la documentation qui peuvent être exigés, il permet la promulgation de règlements déterminant le genre de renseignements et le contexte des documents pertinents que le professionnels de la santé doit conserver et présenter sur demande de la Commission.

Le Bill soulève ainsi la question importante de la conservation et de la communication de documents faisant partie intégrante du dossier médical, ce qui porte atteinte à la forme et à l'intégrité du dossier.

E) Exclusion d'un professionnel de la santé

La version définitive du Bill maintient l'exclusion obligatoire de tout professionnel de la santé trouvé coupable d'une infraction criminelle relativement aux réclamations pour services assurés; l'exclusion porte sur une période de trois mois pour une première offense et de six mois pour toute infraction subséquente.

COMITÉ DE RÉVISION

A) Composition

Le Comité ne sera pas entièrement constitué par des pairs, car le sixième membre devra être un avocat nommé sur la recommandation de l'Office des Professions.

B) Juridiction

Sous la forme actuelle où il est en vigueur, le Bill élargit la juridiction du Comité en incluant la nécessité et la fréquence des services rendus, de même que la question de l'administration abusive de services.

C) Pouvoirs de la Commission

La version définitive du Bill institue un nouveau système, du fait que la Commission doit rendre une décision à la suite de la recommandation du Comité. Après l'expiration du délai prévu pour un appel, la Commission peut obtenir confirmation de sa décision et exécuter un jugement par l'autorisation du tribunal pertinent.

Le professionnel peut faire appel de la décision de la Commission dans le délai prescrit. L'appel n'interrompt pas l'exécution de la décision, à moins qu'un membre de la Commission des affaires sociales n'émette un ordre contraire dans un cas d'urgence. Advenant un appel, le fardeau de la preuve repose dans ce cas sur le professionnel de la santé.

Le système adopté en vertu du Bill n'arcode aucune autorité au Comité de révision. Au mieux, si la Commission ne ratifie pas la recommandation du Comité, il ne peut entamer des procédures de redressement contre le professionnel de la santé et, advenant un appel, il doit assumer le fardeau de la preuve.

QUESTIONS SYNDICALES

Négociation

A) Commission d'arbitrage

Lors de la rédaction de la version définitive du Bill, les législateurs ont tenu compte, en partie, des représentations qu'on leur avait faites quant à l'arbitrage et ont prescrit que la Commission d'arbitrage sera responsable de régler les différends relatifs à une entente. Le Bill autorise toutefois le recours au code civil ou criminel dans les cas de litige ne provenant pas exclusivement d'une entente. Il s'agit, par exemple, de services qui n'ont pas été rendus, qui n'ont pas été exécutés personnellement par le professionnel, qui ont été faussement décrits ou encore qui ne sont pas considérés comme assurés.

B) Frais additionnels

Le texte original du projet de loi rétrécit encore plus le champ de négociation en stipulant qu'un professionnel de la santé ne peut exiger de frais pour un service non assuré qu'il a rendu en même temps qu'un service assuré, à moins que les règlements ne l'autorisent.

La version définitive du Bill conserve cette interprétation dans le cas d'un service accessoire à un service assuré, bien qu'elle autorise certaines exceptions faisant l'objet d'une entente.

CONTESTATION

Dans sa version initiale, le projet de loi autorisait l'adoption d'un arrêté du conseil des ministres pour mettre un frein à tout mouvement organisé de non-participation de la part de professionnels de la santé.

La version actuelle du Bill maintient la possibilité d'un tel arrêté en conseil et stipule que la non-participation de professionnels de la santé équivaudra à un désengagement. En outre, le Bill prévoit un processus complexe et laborieux de paiement en cas de désengagement, à tel point que pareille mesure ne peut pratiquement pas servir d'instrument efficace de contestation.

La seule concession obtenue à cet égard réside dans le fait que l'arrêté en conseil ne peut demeurer en vigueur plus de 90 jours.

LE BÉNÉFICIAIRE

Lors du témoignage des quatre associations professionnelles devant la Commission parlementaire des affaires sociales, les professionnels de la santé ont demandé au Ministre de rejeter le projet de présentation obligatoire de la carte d'assurance-santé par le bénéficiaire. Selon eux, la loi poussait la réglementation à l'extrême en ce qui concernait le bénéficiaire et, du même jet, faisait du professionnel de la santé un détective au service du Régime d'assurance-santé. Le Ministre a ignoré ces protestations, tout comme il a rejeté d'un revers de la main l'opposition fondamentale des professionnels de la santé à l'exécution de sondages au moyen d'échantillonnage au hasard. Ces sondages porteraient préjudice au lien privilégié qui existe entre le professionnel de la santé et son patient.

Si les décisions discutables du Ministre à l'égard du consommateur devaient entraîner des résultats désastreux se traduisant par une profonde méfiance du public envers le régime de soins de santé, ce ne sera pas faute d'avertissements. L'avenir en sera témoin.

Le ministère de la santé de l'État du Massachusetts recommande le dosage d'oxyde de carbone exhalé chez la femme enceinte dès la première visite prénatale chez le médecin. Le risque de mortalité périnatale augmenterait de 20% chez les fumeuses et ce taux passerait à 35% lorsque le future mère fume plus d'un paquet par jour. (Méd. Moderne du Canada avril '79, p. 503).

CONVENTION

Massive reduction of caries rate observed — Scheinin

Dr. Arje Scheinin, professor of cariology and director of the Institute of Dentistry, University of Turku, Helsinki, Finland, will be in Quebec City for the CDA Convention to discuss 'Xylitol in Relation to Oral and General Health'.

According to Dr. Scheinin, a massive reduction of the dental caries increment rate has been observed with total and partial substitution of dietary sucrose by xylitol.

Similar results have also been obtained in several experimental studies. These findings must be viewed as natural consequences to the microbiological and biochemical behaviour of the product xylitol, argues Dr. Scheinin.

These include the stimulation of salivary secretion, elevation of certain electrolyte concentrations of oral fluid, increased buffering of saliva and increase or maintenance of high pH in oral fluid and plaque, lack of suitability for microbial metabolism influence on enzymatic activities and probably the increased content of certain amino acids of oral fluid.

As an entity, peroral xylitol should be considered to stimulate a number of existing defense mechanisms to caries.

Recent metabolic studies have further indicated the safety of perorally administered xylitol at the present dosage levels. Comprehensive blood and urinary analyses on human subjects revealed no untoward side effects.

Dr. Scheinin was speaker of the General Assembly, F.D.I. from 1969 to 1974 and was vice president of that organization from 1975 to 1979.

Dr. Arje Scheinin's paper on the product 'Xylitol' was incorrectly reported in both the preliminary program released last spring and the June issue of the Journal. Dr. Scheinin will in fact discuss "Xylitol in Relation to Oral and General Health" at the Convention.

Dr. Scheinin

What you get for registration

The registration fee for dentists who are members of the Canadian Dental Association is $150 (since August 1). The fee for non-CDA members is $175. This entitles the registrant to attend scientific lectures and table clinics, luncheons on Monday, Tuesday and Wednesday, evening socials on Sunday and Tuesday and the exhibitors' hall.

Auxiliaries (hygienists, assistants and technicians) and spouses (guests other than dentists and auxiliaries) pay $10 for registration that entitles them to attend only the scientific activities and the exhibitors' hall. All other social functions are extra and tickets to attend the luncheons and social events including the President's Ball must be purchased separately.

Accompanying spouses are reminded that tours and other activities are organized daily in the hospitality suite on the convention floor. All spouses are invited to drop in and visit.

CONVENTION SOCIAL EVENTS

Sunday, September 9

7:30 p.m. **OPENING CEREMONIES**
8:00 p.m. **"BIENVENUE CHEZ NOUS"**

The social committee invites you to experience the famous hospitality of Quebeckers by tasting their cuisine, listening to their music and sharing their folklore — all that means "joie de vivre" in Quebec . . .

Monday, September 10

7:30 p.m. **PRESIDENT'S BALL**

A gourmet dinner with soft music and followed by the entertainment of the group "V'là l'bon vent (this troupe of 70 sings in six languages and is well-known in Europe and Japan) will be complemented by the dance music of a 14-member orchestra that will take you back to 'the good ol' days' . . .

Tuesday, September 11

9:00 p.m. **TUESDAY NIGHT FEVER**

Tuesday will be the night of your stay in Quebec. An evening of fun, dancing and entertainment!

Dr. Carl Hawrish:

Pain management in endodontics

Wednesday morning at nine, Dr. Carl Hawrish, a private practice dentist from Alberta, will discuss 'Differential Diagnosis and Management of Pain in Endodontics: Current concepts for the General Practitioner.'

Dr. Hawrish is a graduate of the University of Alberta School of Dentistry, 1971, and received an MSc, Oral Pathology from the same university in 1969. He holds a Certificate of Proficiency in Endodontics from the University of Washington and is currently president-elect of the Canadian Academy of Oral Radiology.

In brief, Dr. Hawrish will present methods of correct and early diagnosis of pulpal and periapical disease. His presentation will consider current clinical methods for diagnosis and a discussion on the management of pain will include a detailed look at the management of post-operative pain in conventional endodontic therapy. Specific clinical procedures to minimize or prevent painful episodes during therapy will be suggested.

The centre of the lower town of Québec along the river-front — Place Royale and its surrounding streets — represents the greatest concentration of 17th and 18th century buildings in North America. This is where the city was born, where Champlain built his first "Abitation", and the site of the historic church of Notre-Dame-des-Victoires (1688).

The Place Royale area is undergoing careful restoration, and in time it will completely recreate a segment of the past. The church and several of the old houses are open to visitors, and an information centre is located in the Le Picart house (built in 1763).

Within the city's fortifications, completed in 1832, stands La Citadelle, a huge fortress on the city's highest point — Cap Diamant.

Quebec's mayor welcomes CDA . . .

On behalf of the City Council of Quebec City, it is my pleasure to welcome the Canadian Dental Association for its Annual Convention.

Quebec City, the French-speaking capital of North America, is well known for its hospitality. We invite you to enjoy our culture, our history and our "joie de vivre". Our modern conference facilities will also add to the guarantee that you will leave our City with happy memories.

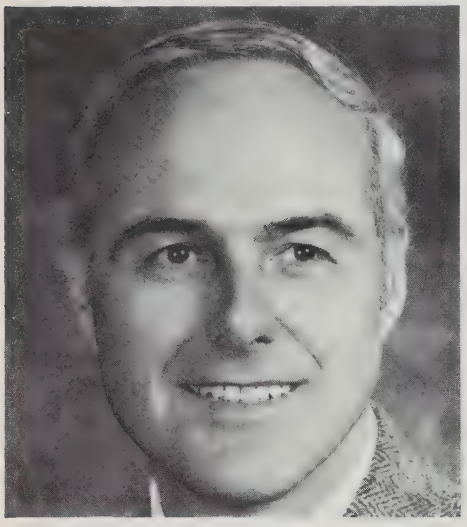
Welcome to Quebec — and come back onften in the future!

Jean Pelletier
Mayor of Quebec City

CONGRÈS

L'exposé scientifique du Dr Gilmore

Le Dr Gilmore, omnipraticien à Indianapolis, Indiana, présentera une conférence intitulée "Développements récents en dentisterie opératoire pour l'omnipraticien: prévention et techniques".



Dr Gilmore

Le Dr Gilmore expliquera les procédés courants de diagnostic et restauration de la dentition naturelle, de même que le choix des matériaux à obturation, à base et à coiffage. Il illustrera des résultats de recherches et les facteurs de manipulation qui amènent à choisir les meilleurs matériaux.

Le docteur Gilmore traitera aussi de prévention de désordres et des techniques utilisées pour résoudre les problèmes de l'omnipraticien cherchant un traitement conservateur à long terme pour le patient. Une attention spéciale sera apportée à l'obturation en amalgame et en or coulé.

"La planification des traitements" — Dr. Paul Jean

Cette présentation s'adresse au praticien général et comprend l'énumération des éléments d'information nécessaires au dentiste pour en arriver à un diagnostic. Vient ensuite une réflection au sujet des besoins du patient, de l'opportunité d'un traitement simple ou complexe, de la séquence et du pronostic. On poursuit enfin par la description détaillée des traitements préparatoires, de restauration et de maintenance possible.

Un cas clinique élaboré de prothèses fixe et amovible servira d'exemple à cette démonstration.

Le coût d'inscription pour le Congrès

Le coût d'inscription pour les dentistes membres de l'ADC est de $150 depuis le premier août. Pour les non-membres, le coût est de $175. Cette inscription permet l'accès aux activités scientifiques, aux déjeuners du lundi, mardi et mercredi et aux soirées du dimanche et du mardi et aux salles d'exposition.

Pour les auxiliaires (hygienists, assistantes et techniciens) et pour les conjointes et invités des congressistes, le coût d'inscription est de $10 et permet l'accès aux activités scientifiques et aux salles d'expositions seulement. Des billets seront vendus séparément pour les déjeuners et les activités sociales, y compris le bal du président.

Les conjointes et invités des dentistes sont priés de noter que chaque jour, à la suite hospitalité, un grand choix d'activités leur est offert.

Vous êtes bienvenus à la suite hospitalité!

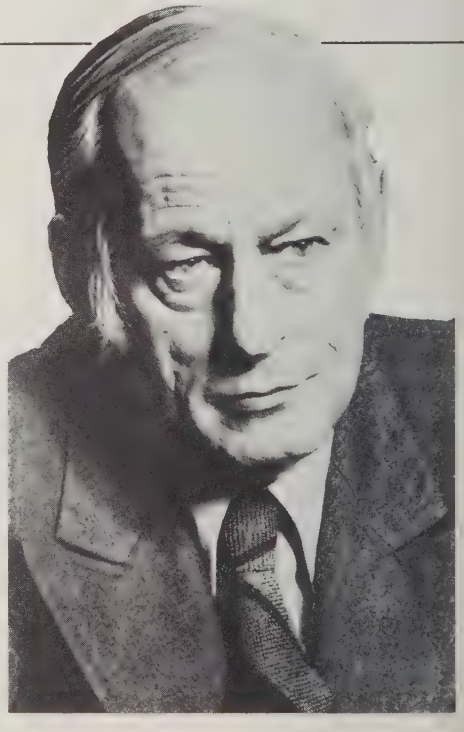
Bon congrès, l'ADC!

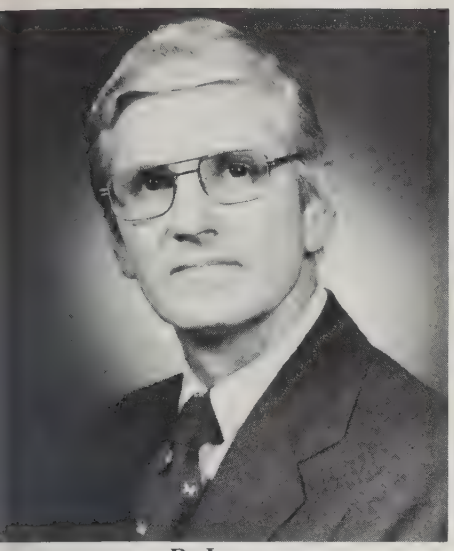
A l'occasion du Congrès de l'Association dentaire canadienne, permettez-moi de souhaiter par avance la plus cordiale des bienvenues au Québec à tous les congressistes canadiens et d'adresser aux organisateurs et à tous les membres de l'Association tous mes voeux les meilleurs de réussite.

Par une si évidente responsabilité vis-à-vis du bien-être et de la santé de nos concitoyens, il appartient pleinement aux membres de l'Association de donner, bien sûr, le meilleur d'eux-mêmes au service du public, mais aussi de travailler à l'intérieur de leur profession à sa meilleure réglementation possible au profit de la plus juste efficacité, du plus fécond des dynamismes.

Bon congrès!
Croyez-moi très cordialement vôtre,

René Lévesque





Dr Laney

Le rôle du dentiste . . .

Le docteur William Laney, prothodontiste au département de dentisterie de la Clinque Mayo, Rochester, Minnesota, donnera une conférence au congrès de l'Association Dentaire Canadienne, sur "Le rôle du dentiste dans un milieu hospitalier".

"Maintenant que le public et le gouvernement se préoccupent de la profession dentaire et de ce qu'elle fait ou ne fait pas, il est nécessaire de réévaluer nos responsabilités professionnelles dans le soin du patient qui a besoin d'un traitement dentaire", dit le Dr Laney.

Il discutera des implications au niveau du milieu hospitalier résultant de l'interaction du dentiste et de ses collègues médecins.

Comme les soins cliniques, l'éducation et la recherche exigent une participation du dentiste, la conférence du Dr Laney traitera aussi des problèmes médicaux et chirurgicaux qui demandent l'intervention du dentiste.

Le docteur Laney est diplômé de University of Oregon Dental School, et possède un MSc en prosthodontie du State University of Iowa.

Il est depuis 1976 directeur du département de dentisterie de la Clinique Mayo, dont il fait partie depuis 1960.

Place d'Armes

ACTIVITES SOCIALES DU CONGRES

Dimanche, 9 septembre

19h30 **CÉRÉMONIE D'OUVERTURE**
20h00 **"BIENVENUE CHEZ NOUS"**

Le comité social veut vous faire découvrir l'hospitalité traditionnelle des québécois par la dégustation de certains produits et mets bien typiques, par son folklore, etc . . . et vous faire partager leur joie de vivre.

Lundi, 10 septembre

19h30 **BAL DU PRÉSIDENT**

Un dîner digne des plus fins gourments sera servi et suivi d'un court spectacle de la troupe "V'là l'bon vent". Cette troupe est composée de 70 femmes et hommes, qui chantent en six langues. Elle s'est produite déjà dans plusieurs pays, dont la France, la Suisse, la Belgique, l'Italie, le Japon, etc. Une musique douce accompagnera le dîner et, après le spectacle, un orchestre de 14 musiciens vous entraînera à danser, comme dans les vrais bals d'autrefois . . .

Mardi, 11 septembre

21h00 **"TUESDAY NIGHT FEVER"**

Avec un titre pareil, inutile d'ajouter que cette soirée sera l'Evénement de votre séjour à Québec. Animation, musique, chanteuse, danseurs, super disco, lumières et surprises, tout contribuera à ce que cette soirée reste un merveilleux souvenir pour tous les jeunes . . . et les moins jeunes!

The history of the Canadian Dental Aptitude Test Program can be divided into three periods: the formative period — 1964 to 1968; the developmental period — 1968 to 1974; and the reconstitution period — 1974 to 1978. The authors give the details of each stage of the DAT program . . .

The History of the Dental Aptitude Test Program in Canada

Walter R. Teteruck, BSc, DDS, MSD
Associate Professor and Chairman
Division of Fixed Prosthodontics
University of Western Ontario

Marcia A. Boyd, DDS, MA
Assistant Professor
Department of Resotrative Dentistry
University of British Columbia

Miss Linda Teteruck, BA, MA
Director of Student Affairs
Canadian Dental Association

One of the many services provided by the Canadian Dental Association is the Canadian Dental Aptitude Test. The Dental Aptitude Test (DAT) provides a standardized method of measuring the psychomotor skill, knowledge, and personality profile of individuals seeking admission to a faculty of dentistry in Canada. The DAT is currently a requirement of admission at all ten Canadian faculties of dentistry and is recognized by American dental colleges as an alternative to the American Dental Admission Test.

THE FORMATIVE PERIOD (1964-1968)

The establishment of a dental aptitude testing program in Canada began in 1964 with a report presented to the CDA Council on Education by Drs. R.M. Grainger and J. Flowers of the Ontario College of Education.[1] They concluded that as long as there was limited enrolment in dental schools and an excess of applicants, the process of selection and rejection was unavoidable. Thus, it was the responsibility of school administrators to undertake the selection of candidates in a reliable way and as scientifically as possible. In the opinion of Drs. Grainger and Flowers, this responsibility rests on the judgement of a selection committee. They recommended that the aptitude tests be used to supply additional scientific data upon which sound selection decisions could be made.[1] In order to help dental school administrators develop a selection process that would be as fair and equitable as possible, it was suggested that a national aptitude testing program should be initiated.

As a result of this initial work the CDA Council on Education recommended the formation of a two man committee to work in conjunction with resource personnel to study and prepare a report relative to instituting an aptitude testing program on a national basis.

With this objective in mind, Dr. Grainger and Dr. Elli consulted with the American Dental Association. Since 1950 the ADA had operated an applicant testing service that produced scores correlating positively to subsequent student performance in dental school.[1] A 1965 report to the Council o Education recommended that a nation-wide aptitude tes program be established using the American Dental Associa tion's aptitude tests modified for use in Canada. The testing program would be administered by a standing committee o the Council on Education which would be responsible not only for guiding and evaluating the aptitude testing program bu also for the development of testing programs in other areas.

Following these recommendations, in 1966, the chairman o the Council on Education was empowered to appoint members to the Dental Aptitude Test Committee. Through revenue from applicant testing fees, the testing service was organized to be self-supporting and initial capital costs were covered by a loan from the Canadian Dental Association. The first examination sessions were scheduled to be held in January 1967.

The first members of the DAT Committee were Dr. W.J Dunn, chairman; Dr. R.M. Grainger and Dr. J.A. Greenfield with Miss Kay Kirker as administrator of the program. It was their responsibility to implement the programme under Council's direction. The terms of reference of the DAT Test Committee were established along with both CDA and ADA responsibilities to the programme. Application forms were designed and distributed, test papers and supplies were approved and purchased; 28 Canadian testing centres were selected and test administrators were chosen. The programme was widely advertised in every Canadian university and college with pure science courses, numerous high schools, provincial government guidance centres, selected libraries and student newspapers.

In January 1967, 649 students took the first Canadian Dental Aptitude Test. These 649 students represented 56.1 per cent of the total number of applicants to dental faculties in Canada. It also should be noted that in 1967, five of a total of nine Canadian faculties of dentistry stated that the DAT examination was a requisite for admission.[2]

The original test battery was comprised of five English language examinations which were designed to measure an applicant's ability to: reason with numbers, manipulate numerical relationships and deal intelligently with quantitative

Cet exposé donne, en trois étapes distinctes, l'historique du programme de Tests d'aptitudes aux études dentaires (TAED): le stade de formation (1964 à 1968), le stade évolutif (1968 à 1974) et enfin le stade de régénération (1974 à 1978).

Le Test d'aptitudes aux études dentaires fournit une méthode normalisée d'évaluer l'habileté psychomotrice, les connaissances et la personnalité des candidats aux études dentaires. À l'heure actuelle, les dix facultés canadiennes de dentisterie en font un critère essentiel d'admission, et les écoles dentaires des États-Unis le reconnaissent comme équivalent aux tests américains d'admission aux études dentaires.

materials; use and understand the meaning of words; read scientific information with comprehension; demonstrate knowledge in the field of elementary biology and chemistry; apply principles and solve problems in the fields of biology and chemistry; visualize the reconstruction of three dimensional problems; and demonstrate manual dexterity.

THE DEVELOPMENTAL PERIOD (1968-1974)

By 1968, the DAT Committee had assumed responsibility for the development of a battery of tests in French. The method of reporting the scores to both the applicants and dental faculties had been established and ratified. A chalk grading committee had been formed with Dr. F.G. Kellam as chairman. Applications for the examination were increasing and it was noted that in 1968-69, 88.1 per cent of the first year class had written the DAT examination.[3]

Even at this early stage in DAT operations, the Council on Education realized the importance of validation studies to support and to justify the use of the examination. It was requested by the Council that each Canadian faculty of dentistry co-operate with the DAT Committee in order that the committee might develop effective procedures to engage in validation studies. With this in mind, Dr. Grainger offered assistance in determining satisfactory methods of gathering and analysing data pertaining to the dental school performance of the aptitude test examinees.

By 1970, the DAT programme was becoming an established service of the Canadian Dental Association to admission committees of Canadian dental faculties. The numbers tested had risen from slightly over 800 in 1967 to 1,100 in 1969. Committee chairmanship changed hands from Dr. Dunn to Dr. F.G. Kellam with Dr. Grainger acting as a special consultant on research and validation. The number of DAT examinees admitted to dental faculties had also risen with three faculties reporting 100 per cent DAT admittance.[4] Financially, the DAT programme showed an accumulated surplus of $3,519. It was the decision of the Committee and the Council of Education that because of the uncertain nature of the validation work which would be undertaken and the future direction of the program, any surplus funds would be kept in reserve for use by the DAT program in its development and for repaying the CDA loan.

During the following year, it was reported that 100 per cent of the students admitted to five of the ten faculties of dentistry had taken the DAT. Finances were yielding a surplus, and a reserve of $8,396 had been accumulated.[5]

For some time now, the problem of validation studies had vexed the committee. The DAT programme had been in operation for three years and data regarding the dental school performance of the DAT examinees had been collected. Consequently, the Committee began negotiations with an independent research organization, for publication of a study to correlate: DAT academic average vs 1st and 2nd year dental school academic average; DAT manual average vs 1st, 2nd and 3rd year dental school manual average DAT reading comprehension score; and DAT reading comprehension scores vs all averages.[5]

By 1972, this study had been completed and there was general disappointment expressed in the conclusions and research. It was felt by the committee that the research had been poorly done by the research company, and that it lacked depth. The study results were therefore considered insignificant.

The committee, under the direction of Dr. Grainger, undertook its own correlation study of DAT results in considering the future of the DAT Program. The study arose from discussions within the committee that there was lack of insight into the true value of the DAT examination.[6]

It was Dr. Grainger's conclusion that the DAT Committee find a way of bringing out the value of the individual examinations rather than researching the examination in total. (One of the main validation problems was that individual correlations had been pooled for overall validation and could not be recovered. This masked the more interesting relationships between the DAT and dental school performance.) The difficulties with the DAT tests as predictors of dental school performance lay in the areas of improper utilization and failure to measure student motivation.

Consequently, Dr. Grainger recommended the DAT test be continued indefinitely so further research could be conducted; that serious efforts be made to improve the utilization of the tests in the selection process; and that motivational and personality tests be included in the battery.[6]

At the same time, Dr. Grainger concluded, on the basis of preliminary research, that the Chalk Carving Examination served as an excellent predictor of preclinical and clinical performance while the reading comprehension and science components served as adequate academic predictors.[6]

The years 1973 and 1974 were a watershed in the history of the DAT Programme. The Council on Education had an opportunity to review Dr. Grainger's recommendations and suggested: continuing the Dental Aptitude Test with significant changes made in the content and application of the results; authorizing $1,000 to the American Dental Association to assist in the development of tests to measure personality and motivation; and conducting a dental admissions workshop to examine the needs of the dental faculties and the adaptation of the DAT Programme to best meet these needs.

As a result of these recommendations, the test content was altered. The survey of the Natural Sciences Examination was deleted and the Test of Biomedical Sciences was used in its place. The Carving Dexterity Examination was eliminated and the Perceptual Motor Ability Test was substituted in 1972. For the first time, in 1974, a personality examination was administered to all candidates on a voluntary basis. A workshop on dental admissions was held and attended by two representatives from each dental faculty. Although the majority of schools were inconsistent or negative in the use of DAT test results, all faculties were in agreement that the DAT not be eliminated. The opinion was unanimous that if validation studies could prove the worth of the examination, all faculties of dentistry would be willing to use the test.

The DAT Program had reached a turning point. If it were to survive, a new and vigorous program would have to be established and new leadership established. Completing validation studies justifying the DAT Program as soon as possible was the key to survival.

Financially, in 1974 the DAT Program was in a healthy, stable position. Total applications for the test were increasing to 1,900 per year and the surplus of funds was expanding to accommodate DAT needs. Over the previous eight years the DAT Program had built a broad and sound foundation and yet this foundation was in need of change and development if

it was to survive. The Programme was growing apart from that of its leader, the American Dental Association, and it was the consensus of the Council on Education and DAT Committee that several dramatic changes should be made.

In 1974, the Council on Education recommended the complete restructuring of the Committee and the introduction of vigorous new leadership. The Council also recommended the independent computerization of DAT results and validation work apart from the ADA.

THE RECONSTITUTION PERIOD (1974-1978)

From 1974 onward, the DAT Program has undergone a number of changes in both its internal operations and its relationship to the dental faculties across Canada. The committee reconstitution resulted in the present members of the DAT Committee: Dr. Walter Teteruck, chairman; Drs. Ernest Ambrose, Marcia Boyd, Gordon Thompson and Dr. James Graham, consultant, American Dental Association.

The testing battery was revised to conform to the needs of the dental faculties: the carving dexterity examination was reintroduced; the SCAT (School and College Ability Tests) examination was eliminated, as were the inorganic chemistry portions of the science examination.

The Survey of the Natural Sciences Examination was returned while the Perceptual Motor Ability Test (PMAT), Reading Comprehension and Personality Factors were retained.

Score reporting was divided into two distinct categories — academic and manual—and validation studies were initiated to substantiate the DAT as a predictor in these two areas.

A series of four priorities for the programme was established by the new committee in 1975 and the committee's objective has been to reach and maintain these priorities: (1) The administration of the DAT examination and the subsequent distribution of the test results following grading; This objective has been reached after a series of set-backs and problems in utilizing outside commercial computer grading organizations. In 1977, the DAT Programme opted to utilize the services of the American Dental Association as a grading service. This relationship has proved to be most satisfactory from both a service and cost point of view. (2) The continued improvement and upgrading of the Dental Aptitude Test through validation work. Over the past four years, Dr. Thompson and the other members of the committee have undertaken the collection of data and the validation of the test results in the academic, manual and personality areas. Three preliminary studies have been forthcoming on the 1975 and 1976 DAT test results, as well as a study on first year admissions. (3) Involvement in the development and/or participation in other research relevant to the Program. The DAT Committee during the past four years has also been involved in investigating new areas of program expansion such as the testing for visual perception problems and colour blindness as well as an expansion of our own personality testing program. Committee members have attended two annual meetings on personality testing in conjunction with the American Dental Association and a trial evaluation has begun on evaluating the personality of third and fourth year dental students for deviant behavioural characteristics. It is hoped that the results of this study can be correlated to the results of the DAT 16 Personality Factors Examination and the admission interviews. (4) The exchange of information with all participating schools with regard to interpretation of test results and their problems and future needs so that continued test improvement can be guaranteed.

This fourth objective of the DAT Programme, established in 1975, explains why the Committee reported to the 10th Biennial Conference of the Association of Canadian Faculties of Dentistry.

Over the past four years, the DAT Program has attempted to keep the dental faculties informed about its progress, what the test results mean and how they should be interpreted. Chalk Carving samples have been forwarded to each dental faculty to provide each school with some standard of measurement with which to guage the DAT Chalk Carving scores. A preparation manual has been produced to familiarize both the applicant and the dental faculty with the types of tests which are used and their degree of difficulty. A bibliography of materials and research relevant to the DAT Program has been produced for the use of admission committees in their understanding of the DAT. A survey has been undertaken to evaluate and compare the admissions procedures at the 10 faculties of dentistry in Canada in an attempt to allow each faculty to compare its present method of admission with those of its fellow faculties and to allow each faculty an opportunity to evaluate its own methodology in a critical fashion.

In the history of the DAT Program, a turning point has once again been reached. Without the support of the Canadian faculties of dentistry there would be no DAT Program. The DAT Committee, today, with you, is evaluating its program and progress to date. It is only with this exchange of information that the DAT test has any meaning and that continued test improvement can be guaranteed.

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Miss Linda Teteruck

Dr. Marcia A. Boyd

The admissions committees of dental schools are faced with the difficult duty of selecting students who show promise . . . because of the cost of dental education and limited facilities in dental schools, only students who show optimum chance of success are admitted. The Dental Aptitude Test Program was initiated to assist in the selection of students with a high degree of intellectual and manual ability — those who are the most likely to complete dental school . . .

THE CONTENT AND USE OF THE DENTAL APTITUDE TEST PROGRAM

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I Type of examinations used in the Dental Aptitude Test Program

The examinations used in the Dental Aptitude Test Program are "norm reference" rather than "criterion reference" examinations. "Norm reference" means an attempt is made o compare students with each other and then rate them in ome ascending or descending order.

From this comparison, students who show the most promise f completing a dental curriculum are selected. Although a ertain amount of material is covered in the examination, the rade is not based on the amount of material the candidate has astered. Rather it is based on the rank the student has obined in relation to other students.

The use of this type of examination follows from the purose of the Dental Aptitude Test Program. In order to achieve s purpose, a selection instrument rather than a predictive strument is needed. Primarily, we are attempting to select e students who show the most promise in completing dental hool. The attrition rate for the freshman class for the ten ears prior to the initiation of the Dental Admission Testing rogram in the United States in 1946 ranged from ten to 18 er cent. Subsequent to its acceptance by all American schools 1950, this rate has been reduced to about three per cent. ndoubtedly, other criteria are used in selecting candidates, ut these statistics justify the use of a norm reference type of amination and demonstrates the valuable contribution the Dental Admission Testing Program has made in the last 25 years to dental education.

Le but des tests d'aptitudes aux études dentaires est d'en arriver à une comparaison des étudiants les uns avec les autres, puis à n classement ascendant ou descendant. Le résultat de l'examen e reflète donc pas la quantité de matière absorbée par l'étudiant, ais son rang par rapport aux autres. À cette fin, on recourt à un strument de sélection plutôt qu'à un instrument de prédiction. vant la mise en application du programme de tests d'aptitudes ux études dentaires, en 1946, aux États-Unis, le taux d'abandon ndant la première année d'études avait varié de dix à dix-huit our cent au cours d'une période de dix ans. Or, depuis l'avènement du programme, le taux d'abandon a fléchi à environ trois our cent, témoignage éloquent de l'utilité de ce programme aux ats-Unis au cours des 25 dernières années.

Le présent exposé aborde le genre d'examens utilisés dans le dre du programme de tests, la teneur du programme, de même ue le classement et l'interprétation des tests d'aptitudes aux udes dentaires.

II Content of the Dental Aptitude Test Program

There are four individual examinations contained in the Dental Aptitude Test Program. The first of these is the *Survey of Natural Science Examination.* This is an achievement test which evaluates what the applicant has accomplished in undergraduate courses in science. The exam consists of 70 items divided into two sections — 40 items of basic first year biology and 30 items of inorganic or general chemistry. An outline of the content of these two sections of the examinations follows: **Biology** — Cell structure and function. Life and its characteristics. Cellular energetics. The animal kingdom. Human anatomy and physiology. Reproduction and development. Genetics. Evolution and ecology. **General Chemistry** — Nature of matter and measurement. Stiochiometry. Gases. Atomic structure. Liquids and solids. Chemical equilibrium. Rates of reaction and kinetics. Thermodynamics and thermochemistry. Solutions. Oxidation-reduction reactions. Quantum mechanics. Periodic properties. Nuclear reactions.

Each section of the examination is constructed by a separate test committee. Items in each area are solicited annually from about 15 undergraduate faculty members These faculty members are usually predental advisors, so they have a vested interest in the examination. The test construction committees meet each fall in order to edit the items and select the most appropriate for the separate parallel forms of the test to be used during the next program cycle. For the last five years, emphasis has been placed on selecting items of a problem — solving type rather than those of simple recall.

When the *Survey of Natural Science Examination* is scored, separate scores are given for each of the sub-sections as well as the scores for the examination as a whole.

The second examination included in the program is the *Reading Comprehension Examination in the Dental Sciences.* This examination consists of a reading passage containing an average of 4,000 words, which usually amounts to about four typeset or fifteen typewritten pages. The subject matter for this passage develops some aspect of dental basic or clinical science not covered in an undergraduate college curriculum. This is followed by 50 items which examine the concepts and ideas developed in the passage. The design of the examination attempts to reproduce a type of reading experience comparable to that which would be found in studying a dental science textbook. The importance of this examination becomes evident when one remembers the large volume of reading of scientific material that is required in the dental school curriculum.

The third examination in the Dental Aptitude Test Program is the *Perceptual Motor Ability Test* (PMAT). This examination was developed for experimental use in 1968 and includes several of the major factors commonly identified in studies of perceptual ability. The areas used are line and angle discrimination, block counting, space relationship and object visualization. The latter two factors relate almost exclusively to form perception. It has been clearly demonstrated, especially in industrial psychology, that those factors that constitute the major attributes of one's ability to perceive small differences actually are valuable in selecting candidates who need fine manual dexterity.

The PMAT consists of a two-dimensional and three-dimensional part. Each part contains 75 items. Scores are given for each part as well as for the average of both parts.

The fourth examination contained in the Dental Aptitude Test Program is the *Carving Dexterity Test.* This test is not a paper and pencil test as the other tests in the battery, but rather a manual performance test. Each applicant is given a piece of chalk, a ruler and knife and asked to carve a figure according to a set of predetermined specifications. The test is graded according to three criteria, namely; the degree to which the surfaces are flat and smooth, the degree to which the angles are correct and clean cut and the degree to which the finished product is symmetrical. The chalk carving test measures the ability of the applicant to follow directions and to visualize in three dimension as well as his manual dexterity.

The four examinations in the Dental Aptitude Test Program take approximately four and one-half hours to complete. It is given twice a year, in mid November and early March. The testing period usually begins at 9:00 a.m., with an hour for lunch, and is completed about 2:30 p.m. The program is administered at approximately 19 test centres across Canada.

The problem of how to evaluate a test has received increasing attention in recent decades. Essentially, all approaches to test evaluation have suggested that two basic aspects of the test must be studied, namely; its reliability and validity. I will discuss the test reliability in this paper.

Reliability is often defined in terms of the precision or consistency of the assessment process. The assumption that the Dental Aptitude Test Program involves sufficiently precise measures to permit meaningful descriptions of whatever attributes they measure underlies most uses of the tests including their use as a measure of developed academic and manual ability.

For determining the reliability of the tests used in the Dental Aptitude Test Program, the Kuder-Richardson Formula 21 is computed from item and total score statistics. The reliabilities of the tests used in the October, 1977 administration of the Dental Admission Testing Program in the United States are as follows: Reading Comprehension .81; Survey of Natural Sciences .86; Perceptual Motor Ability 2D .85; and Perceptual Motor Ability 3D .88. The Carving Dexterity Test on an inter rater correlation usually obtains a reliability in the middle to higher eighties. These reliabilities are at the high end of the range of acceptable test statistics.

III Grading and Interpretation of the Dental Aptitude Tests

Each examination used in the Dental Aptitude Test Program yields a numerical score of the dental applicant's performance. Numerical scores are raw scores indicating how many questions a candidate answered correctly or how many points he has been awarded on the three criterion used to grade his chalk carving. A raw score, however, must be converted to a standard score before it is possible to compare the performance of one applicant with the performance of all applicants on any or all of the examinations included in the program.

The conversion of raw scores to standard scores is based on the distribution of raw scores. From a frequency distribution of raw scores, the mean and standard deviations are computed. In the Dental Aptitude Test Program, the mean is assigned a standard score of four and each one-half standard deviation above or below the mean is assigned a standard score of one above or below four. Thus, the range of scores for the Dental Aptitude Test Program is a minus one to nine.

The items for the Dental Aptitude Test Program are selected with a difficulty level between .40 and .60. When this is done the resulting distribution of scores becomes a normal or bell shaped curve. If a normal or near normal distribution is achieved then the standard scores can also be converted into a percentile band equivalent. This means that when one is interpreting the scores of nine, the applicant's standing would be at the top one percent. Likewise, a score of five, puts the candidate in the 61 to 77 percentile group. This is the average percentile group for most candidates who have been accepted to dental school the last few years.

The cut-off score used by many dental schools is a score of four. This means that applicants who are below the 40th percentile group are usually not viewed as acceptable candidates. This cut-off score has been validated by various attrition studies performed by the Division of Educational Measurements (American Dental Association).

Because the Dental Aptitude Tests are designed to predict in two areas, the theoretical or academic and the technical or manual, two component or average scores are also included on each test report besides the nine individual or sub-scores. The first of these is called the academic average, which is an average of the reading comprehension, biology and inorganic chemistry test scores. The manual average is an average of the two and three dimensional PMAT scores and the Carving Dexterity Test. In general, there is a more direct relationship between the academic and manual averages and performance in dental school than there is between the individual sub-test scores and this performance. (Since this is not always the case, however, it is recommended that admission committees consider the entire profile of an applicant rather than just the composite or average scores.)

In general, the Dental Aptitude Test scores should not be used as the sole or even primary criterion for admission into dental school. Rather, they should be used as a supplement to, and confirmation of, the grades the candidate has received during high school and college. Where a discrepancy between the grade point average and the Dental Aptitude Test scores is found, the admission committees should try to establish the reason for this discrepancy. When a candidate receives a score below four on either the academic or manual average of the Dental Aptitude Test, the committee should proceed with caution. Other criteria should be applied to determine the final suitability of candidates who score above five on the test.

PERSONALITY TESTING FOR DENTAL ADMISSIONS

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Academic performance is the primary criterion used in dental admissions. There is a need for a broader base of information with respect to applicants' attitudes, values and motivation. Personality testing may provide important information that can be used in conjunction with academic standing and manual aptitude to assist in admissions decisions.

There has been an increasing awareness over the years of the need for additional information, beyond the academic, to aid in the dental admissions process[1-6]. Concern is often expressed that some students accepted into dental school may not, in fact, make the best dentists[5]. It is also a fear that many well-rounded, well-adjusted students who could become highly successful practitioners may be overlooked by admissions committees. This may reflect current admissions policies. Academic standing still remains the primary criterion for selection,[7-8] although there are non-grade considerations such as interviews, letters of reference, and personal statements which may be utilized in the decision making process.

Personality characteristics, sense of values and attitudes are already well developed before an individual begins his professional training. It would be advantageous to be able to reliably test for personality characteristics that are considered necessary or desirable for a health professional. Standardized tests such as the Opinion, Attitude and Interest Survey (OAIS),[9] the Edwards Personal Preference Schedule, the Allport-Vernon-Lindsay Study of Values, the California Psychological Inventory (CPI) and the Strong Vocational Interest Blank have all been used to identify the social characteristics and role orientations of entering dental students[10]. However, these studies involved only small samples at individual institutions over a short period of time which makes generalization of the findings difficult. Variable and disappointing correlations have

L'acceptation des candidats aux études dentaires se fait surtout à partir du critère de succès scolaire. Il se révèle toutefois nécessaire d'obtenir des renseignements plus approfondis sur les candidats, surtout en ce qui a trait à leurs attitudes, leurs valeurs et leur motivation. Des tests de personnalité peuvent donc procurer des renseignements importants qui, de concert avec le succès scolaire et les aptitudes manuelles, aideront à prendre de meilleures décisions quant au choix des candidats.

TABLE I

16 PF SCALES*

Reserved — Outgoing	Trusting — Suspicious
Dull — Bright	Practical — Imaginative
Changeable — Mature	Unsophisticated — Shrewd
Submissive — Assertive	Confident — Apprehensive
Serious — Enthusiastic	Conservative — Experimenting
Less rigid — Conscientious	Group dependent — Self-sufficient
Timid — Adventuresome	Uncontrolled — Controlled
Tough minded — Sensitive	Relaxed — Tense

*Manual for the 16 PF, Institute for Personality and Ability Testing, 1972.

TABLE II

DENTAL STUDENT 16 PF TRAITS

CONSCIENTIOUS	CONTROLLED
Responsible	Obstinate
Moralistic	Compulsive
Persevering	Effective leader
Sense of duty	Socially aware
Exacting in character	Strong control of emotions and behaviour
Prefers hardworker to witty companions	"Self-respect" and regard for social reputation

TABLE III
CHARACTER TYPES IDENTIFIED BY CLINICAL BEHAVIOUR FROM THE CRITERION VALIDATION INSTRUMENT

TYPE I
Argumentative, cannot accept criticism
Very demanding
Proceeds rashly, takes short-cuts
Lacks concern for patients
Stubborn, complainer
Unaware of own limitations
Lacks mature judgement

TYPE II
Unprepared, panics easily
Lacks confidence
Dependent on direction
Fearful of discussions
Views patient as a means of meeting requirements

TYPE III
Tardy, absent
Distracted, divided attention
Cancels appointments
Shys from complex cases
Minimum quality, often inaccurate
Note self-critical, does not seek assistance
Excuses self by blaming others

been reported[11-13] when the CPI was correlated with criteria such as dental school grade point averages, role models and subjective faculty evaluations. The subjective nature of the criterion lowers the correlations and makes application of the results impractical. Following investigation and consultation with the American Dental Association, the Canadian Dental Aptitude Test (DAT) Committee decided to incorporate a personality subtest into the DAT test battery in 1974. The "Sixteen Personality Factor Questionnaire" (16 PF) was selected. It is an objectively scored, norm-referenced test devised by basic research in psychology to give the broadest coverage of personality possible within test time limits. The 16 PF provides a comprehensive coverage of normal personality based on 16 functionally independent and psychologically meaningful dimensions which have been isolated and replicated in more than thirty years of factor analytic research[14]These sixteen personality traits are shown in Table I.

The test is scored to a combined male/female college population centered upon and corrected to 20 years of age. To avoid distortion, questions are designed with three alternative answers. In addition questions lacking "face validity" are included. Items reflect both the desirable and undesirable aspects of both ends of each of the sixteen factors scales. With regard to reliability and validity, the 16 PF scales have been explored and reported for a variety of samples and conditions. A rich base of criterion evidence exists in industrial, clinical, social and educational psychology[15-16].

The American Dental Association's Division of Educational Measurement began a study in nine U.S. dental schools in 1976. They expanded the 16 PF with twelve additional scales representative of pathologic behaviour. This comprises the "Clinical Analysis Questionnaire" or CAQ.

In 1977 a lengthy criterion validation intrument was created consisting of statements illustrative of desirable and undesirable clinical and professional behaviour. Some statements read: "Proceeds rashly with radical operations which may not be correctable", "Continually asks faculty to do as much of the procedure as possible", and "Remains calm in the face of difficulties and can think productively in difficult situations". This instrument was then analysed and three character types were identified. Subsequently it has been reduced to test reliably for these three types of students.

Preliminary studies of the personality test indicate that dental students obtain significantly high scores on two personality scales[17]. They represent the traits of "conscientious" and "controlled". Broader descriptions are given in Table II. The three character types identified by the criterion validation instrument are shown in Table III.

Since 1974, all dental school applicants in Canada have written the personality test. Therefore, the graduating class of 1978 creates the first opportunity to correlate the validation instrument with the personality test results. Faculty members having comprehensive clinical contact with students have evaluated third and fourth year dental students at several Canadian dental schools using the validation instrument. This in conjuction with the student's 16 PF scores constitutes the data for the first correlation study on personality. Since there had been no personality testing in U.S. prior to 1976 the results of the Canadian validation study will be of particular interest.

Selecting the "best" candidate for undergraduate dental education is a problem faced annually by every faculty of dentistry in Canada. As members of the dental profession we know that certain individuals, although they may be highly qualified academically, seem to be "misfits" within the profession. It is our responsiblity to continue to search for reliable and valid information that can more accurately select students who will not only become successful but also responsible and ethical members of the profession. Personality testing is still in its early stages. It is hoped that the establishment of a larger data base from which reliable conclusions can be drawn, will provide yet another piece of vital information that can assist admissions committees in the selection of suitable candidates for the dental profession.

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In selecting students for the various professions, normally the number of candidates is large, training is relatively costly, and the number of places is limited. Consequently, the competition for entry is extreme. If some valid predictors of success in a profession were known, the task of selection committees would be easier.

To establish the validity of predictors requires a valid or, at least, well-defined criterion for success. In the present state of our knowledge we know a little about what makes a good dentist and less about the elements that "what" is composed of. If we have a set of valid indicators (cognitive, affective, social, and physical) essential for determining a good dentist, then we can always select a set of variables that best associate with the criteria of a good dentist. The point, often ignored, is that to determine a reliable and valid set of predictors it is a prerequisite to have a reliable measure of the predictand.

EVALUATION OF THE DENTAL APTITUDE TEST COMPONENTS AS PREDICTORS OF DENTAL SCHOOL PERFORMANCE

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The Canadian Dental Association administers the Canadian Dental Association Aptitude Test (DAT) which includes a chalk-carving test and a personality profile battery (16-PF) to almost all of the candidates who apply for admission to Dental Schools in this country every year. In the past several years, although measures have been collected from applicants on reading comprehension, biology, inorganic chemistry, perceptual motor ability in two dimensions (PMAT 2D) perceptual motor ability in three dimensions(PMAT 3D) and the chalk carving test, their utility as criteria for selection is still being investigated. In addition to these aptitude variables, measures have been taken on the 16-Personality Factors from the same applicants in the hope of finding what personality profiles may be conducive to success in dentistry. Although it is desirable to develop an independent criteria of success in the dental profession, traditionally the investigators in this field have adopted the dental school grades as measures of success in dentistry.

PRESENT STUDY

The present study is part of a continuing investigation of the validity of the Canadian Dental Association's Dental Aptitude Testing Program for predicting dental school success. The intention was: to investigate the nature of relationships between the predictor variables (various DAT scales, 16-PF subscale and chalk carving score) and the criteria variables (various dental school grades); to determine an optional set of statistically significant variables from a larger set of selection variables which maximally discriminates between the two populations of interest — accepted by dental schools and not accepted by them; to test certain hypotheses which have direct bearings on this problem; and to

Table I

Students by University and Year

	Years In Dental School		
University	One	Two	Total
British Columbia	36	31	67
Alberta	46	46	92
Manitoba	32	0	32
Western	56	51	107
Toronto	131	119	250
McGill	40	36	76
Montreal	78	78	156
Laval	25	20	45
Dalhousie	26	19	45
	470	400	870

Table II

DAT Repeats — Univariate Analyses

	ATTEMPT			
	(N=498)		(N=46)	
Component	1	2	2	3
Reading	3.61	4.08	3.79	5.07
PMAT-2D	3.59	4.92	4.78	5.37
PMAT-3D	3.63	4.61	4.07	4.76
Biology	3.59	4.21	3.93	3.98
Inorganic Chem	3.59	4.06	4.04	4.13
Academic Ave	3.78	4.17	3.89	4.24
Science Ave	3.89	4.38	4.09	4.61
PMAT Ave	3.81	4.96	4.57	5.20
Chalk	3.84	4.59	4.20	4.50

investigate and identify if there is a personality profile which differentiates dental school students from the rest of the population.

The population of interest consisted of all applicants (past, present, and future — at least for the next few years) who seek admission to freshman classes in any dental school in Canada.

For this study we have analysed the data sets collected from the dental school candidates over the years from 1974 to 1977 inclusive. This comprises altogether 5,247 cases or experimental units. Although this is not a random sample from the population that was previously defined, for all practical purposes we may reasonably extend the inferences drawn from this sample to the population of interest without taking chances on major error.

In 1975 and 1976, a total of 870 students **(Table I)** were admitted to the freshman classes of nine of the schools. Information from one relatively small school was not available, therefore, without any means of identification those few cases were treated as not admitted. Of the 870 cases called accepted. 400 were admitted to the first year classes in September 1975 and 470 in September 1976. As a result, there were first year performance scores on all of the 870 cases, whereas, for the second year criterion scores, there were only 400 cases.

Applicants can repeat the Dental Aptitude Test twice in any five year period. In the present study, there were 498 who took the test twice, and of those there were 46 who took the test three times **(Table II)**. In all but the three designated combinations, there was a significant difference between the last attempt and the previous one. This is indicative of the learning experience that can be a component of the Dental Aptidude Test battery when it is repeated several times. In such instances, a test battery becomes a test of information rather than the present test of ability.

When the comparison was made between those 870 students who were accepted and the remainder who were classed as not accepted, there was a statistically significant difference between the two groups **(Table III)**. Even though the criteria varied from school to school, there tended to be a definite distinction between the accepted group and the remainder of the population.

The personality factor profiles were not utilized for the evaluation of applicants in any of the nine dental schools. However, seven of the personality factors were significantly different between the two aforementioned groups. It must be self-gratifying to Admissions Officers and members of Admissions Committees to appreciate that in general those who were accepted were more intelligent, stable, enthusiastic, trusting, imaginative, forthright, and confident. By and large these are positive personality characteristics that would help a student in handling the rigours of the dental school curriculum and private practice. Since the other factors listed in Table III are used in some schools as selection criteria, it is therefore expected that some of these would show significant differences between the accepted and not accepted groups.

The correlations between the Perceptual Motor Ability components and the Chalk Carving Test were similar for the accepted group of 870 and the total sample of 5,399 **(Table IV)**. There tended to be a high correlation between the Perceptual Motor Ability two-dimensional and three dimensional components and the overall Perceptual Motor Ability average. On the other hand, the chalk carving result was significantly related to the Perceptual Motor Ability Test and its components, but at a much lower level. This would indicate that the Perceptual Motor Ability Test and the Chalk Carving Test are related, but not to the degree where one could replace the other without the loss of some important information.

Significant multiple regression equations were derived for the first year averages. In the multiple regression analyses, variables were utilized to allow for the variability between schools because of different marking systems and students and the differences between the two years of data. The Dental Aptitude Test science score was a practical predictor of the didactic average (multiple correlation of 0.55) in conjunction with the year and University variables. Of more value (multiple correlation of 0.51), was the prediction of preclinical performance by utilizing the Chalk Carving Test (simple correlation of 0.21) and the Perceptual Motor Ability Two-dimensional component (simple correlation of 0.13) and year and university. For the overall average, once again the science average was useful in addition to the year and university and the Perceptual Motor Ability Two-dimensional component and the second and sixth personality factors which were intelligence and

Table III

Significant Accepted and Not Accepted Group Means For All Universities

Variable	Accepted	Not Accepted	F-Ratio
PF02-Intelligent	8.05	7.69	22.73**
PF03-Stable	17.24	16.37	30.82**
PF05-Enthusiastic	15.47	15.05	5.44*
PF09-Trusting	7.54	7.87	6.53*
PF10-Imaginative	12.56	12.19	7.91*
PF11-Forthright	8.23	8.68	12.41**
PF12-Confident	8.30	8.74	11.83**
Reading	4.60	3.64	120.78**
PMAT-2D	4.81	3.78	145.86**
PMAT-3D	5.04	3.90	177.61**
Biology	4.93	4.11	99.98**
Inorganic Chem	4.84	3.88	129.95**
Academic Ave	5.26	4.21	199.00**
Science Ave	5.37	4.34	190.33**
Chalk	5.11	4.04	168.55**

*significant at 0.05 level
**significant at 0.01 level

conscientiousness, respectively (multiple correlation of 0.58).

For the second year averages, the multiple regression analyses were somewhat similar. Once again the chalk carving test (simple correlation of 0.25) was a practical predictor of preclinical performance, with the addition of the third personality factor denoting stability while the science component was useful for the didactic and overall averages.

SUMMARY AND CONCLUSIONS

As yet, there is no perfect system for selecting dental students for the present-day curriculum or indirectly for private practice. A lot of emphasis is often placed on the use of weight for various factors in the selection of students. This type of approach tends to presuppose that there is a perfect formula for the selection of students. In that there is not, one should appreciate that there are some factors that are useful in predicting dental school performance. When the present data were analysed on a University — specific basis, it was found that in many cases, the reading comprehension score on the Dental Aptitude Test was a useful predictor of performance in some of the didactic courses.

The present preliminary study indicates that the science average from the Dental Aptitude Test battery can be utilized in predicting performance in some of the didactic courses and the overall didactic average. However, many schools are able to replace this test with the science of overall average that the student achieves in the predentistry curriculum.

To date, the data have demonstrated that both the Chalk Carving and the Perceptual Motor Ability Tests are useful components in predicting the manual dexterity and preclinical abilities of the students. They tend to reinforce one another to a limited degree, but they are not giving the same type of information or the same type of predictability. If anything, the Perceptual Motor Ability Test is probably delineating the perceptual component, while the Chalk Carving Test is outlining the follow-through or ability to do what one perceives.

Table IV

Correlation between PMAT and Chalk

		Total Sample		(N=5399)	
Accepted (N=870)		PMAT-2D	PMAT-3D	PMAT AVE	CHALK
	PMAT-2D		0.52	0.85	0.23
	PMAT-3D	0.50		0.85	0.36
	PMAT AVE	0.80	0.87		0.34
	CHALK	0.22	0.32	0.30	

Admissions committees should be aware of the limitations of the predictors they have at their disposal, but with this knowledge, the selections that are made are, and should be, better than any lottery system that may be devised.

When the clinical performance data is added to the present data set, it will be possible to more definitively look at the end-product of dental school and relate it to the individual's Dental Aptitude Test scores.

Dr. Gordon W. Thompson

L'étude actuelle révèle que la moyenne en sciences obtenue dans la batterie de tests d'aptitudes aux études dentaires peut servir à prévoir le succès de l'étudiant dans certains cours théoriques, ainsi que leur moyenne générale dans les matières théoriques.

Jusqu'ici, l'expérience nous a appris que le test de sculpture sur craie et les tests d'aptitudes perceptives et motrices sont utiles pour prévoir la dextérité manuelle et l'aptitude préclinique des étudiants.

Les comités d'admission devraient être conscients des limites des instruments de prédiction disponibles; il demeure que le choix des étudiants en est grandement amélioré et devient le plus précis possible.

Une fois qu'on aura ajouté aux données actuelles les renseignements sur la performance clinique, il deviendra possible d'établir un lien précis entre les qualités requises du diplômé d'une école dentaire et les résultats des tests d'aptitudes aux études dentaires.

ADMISSION PROCEDURE SURVEY CANADIAN DENTAL SCHOOLS 1977-1978

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A survey of admission procedures was carried out to provide an up-date on current approaches to screening and accepting first year students into the ten dental schools in Canada. The purpose of the survey was threefold: to survey the admission procedures used in Canadian Dental Schools; to collate the strongest points from each; and to provide what appears to be the most effective procedure, against which schools may compare their policies and from which all may benefit.

The third survey purpose, can only be partially determined at present. The faculty members who completed the questionnaires on the current admission procedures, included thoughtful additional comments and/or information from their calendars to assist in the review and understanding of how each school manages to say "no to many" and "yes" to the relatively few candidates to be admitted to dentistry. In 1977-78, 3,412 candidates applied, and were documented, 500 were accepted to the ten first year programs in Canada, includes both anglophone and francophone students.

The information was requested under six main headings: Part I — Structure of the Admissions Committee; Part II — Non Academic Determinants for Applicant Selection; Part III — Academic Determinants for Application Selection; Part IV — The Interview of Applicants; Part V — The Final Evaluation; and Part VI — Comments requested on several questions asked in this section.

Le présent exposé porte sur une étude du processus d'admission, menée dans les dix écoles dentaires canadiennes dans le but de donner un aperçu des méthodes actuelles de sélection et d'admission des étudiants de première année. Un résumé des conclusions a été préparé à partir des réponses reçues.

L'étude visait tout particulièrement à examiner le processus d'admission utilisé dans les écoles dentaires canadiennes, d'en déterminer les points forts pour chacune, d'élaborer le meilleur processus possible afin de procurer aux écoles un point de comparaison et une source de renseignements utiles.

PART I — STRUCTURE OF THE ADMISSIONS COMMITTEE

Question 1 How is your admissions committee selected?
Answer 1 Without exception Faculty Council or the Dean advised by Faculty Council, elects or selects Admissions Committee members. (with the exception of student representatives).

Question 2 List the positions held by your Admission Committee members.
Answer 2 Majority include: members from dental, medical and/or university faculty; Dean is active committee member in 6 schools and ex officio in four schools; Student members — six schools; Registrars from University and/or licensing bodies for profession — six schools; Lay person and/or dentist not on staff — 3 schools; Committee members range from 4-13 in number

Question 3 Who effectively decides on *acceptance* of first year class?
Answer 3 9 schools — the Admissions Committee

Question 4 Do your Committee members have a *standardized approach* for evaluating a candidate's suitability?
Answer 4 8 schools — yes; and 2 schools — no

PART II — NON ACADEMIC DETERMINANTS FOR APPLICANT SELECTION

Question 5 How many candidates were fully documented and considered for admission in 1977-1978?

Answer 5

School	Candidates	No. of Positions Available
U.B.C.	238	40
Alta	245	50
Sask	76	20
Man	135	33
U.W.O.	497	56
Toronto	695	128
McGill	494	39
Montreal	555	85
Laval	290	24
Dalhousie	187	25

Question 6 Does the province of residency strongly influence candidate selection?
Answer 6 All faculties stated yes

Question 7 Do you feel that the residency criteria is . . .
Answer 7 (a) just and desirable (6 schools agreed); (b) necessitated by provincial health needs, etc. (4 schools agreed)

Question 8 Do you insist on Canadian citizenship or landed immigrant status with regard to successful applicants?
Answer 8 6 schools — yes (except for where foreign students *may* be accepted on student visas); 3 schools — no; and 1 school abstained

Question 9 Is the applicant's *anonymity* maintained during the selection process?
Answer 9 7 schools — no; and 3 schools — yes

Question 10 Do you feel *letters of recommendation* from persons such as teachers, etc. are useful in assessing candidates?
Answer 10 5 schools — yes (subjective tendency); and 5 schools — no (find them of little or no value)

Question 11 If yes in Question 10, do you give above average weight to letters from the medical and dental profession?
Answer 11 No school attaches extra weight to such letters.

Question 12 Do letters from the dental and medical profession help or hinder the applicant?
Answer 12 5 schools — no reply; 4 schools — neither helps nor hinders; 1 school — N/A

Question 13 Do you use a form letter of recommendation for all applicants?
Answer 13 6 schools — yes Comment: Simplifies review and condenses replies received.

Question 14 Is a previous application to your Faculty a consideration in selecting a candidate?
Answer 14 6 schools — no; 2 schools — a minor plus factor; and 2 schools — yes

Question 15 Is a joint application to Medical and Dental Schools considered acceptable to your Admissions Committee?
Answer 15 7 schools — yes; and 3 schools — no

Question 16 If it is known that an applicant has a joint application, is this candidate scrutinized in any different manner from other applicants?
Answer 16 8 schools — no; and 2 schools — yes

Question 17 Do you have an age limit beyond which you will not accept candidates to first year?
Answer 17 8 schools — no (but more thorough scrutiny by two schools over age 26 and 30 respectively); 2 schools — yes (35 years of age)

Question 18 Are you, through your admissions policies, making an effort to increase the number of well qualified women entering the profession?
Answer 18 7 schools — a non issue and 3 schools — yes

PART III — ACADEMIC DETERMINANTS FOR APPLICANT SELECTION

Question 19 Please list the pre-requisites you require for admission in 1977-1978.
Answer 19 "University level" education requirements vary from one to three years and are further complicated by the graduation year from provincial high schools (Grade 11, 12 and 13). Subjects are similar, but include more as pre-requisites as the number or predental years required increases (humanities, etc.). Chemistry, Organic Chemistry, Physics, Biology, Mathematics are the core subjects. English as a subject is not generally listed, but a language or literature course is usually included automatically, at university level. (An acceptable knowledge of the French language is required for entering two of the three Quebec dental schools, and a working knowledge of French, both written and verbal, is required for those seeking permanent licensure in that province by all professionals).

Question 20 If all pre-requisite criteria are met, do you prefer a candidate: (a) with a degree; (b) without a degree; (c) no preference
Answer 20 (a) with degree — 2 schools; (b) without degree — 1 school; (c) *no preference* — 7 schools

Question 21 What percentage of your first year class (1977-1978) have the following?

Answer 21

School	B.Sc.	B.A.	Masters	Ph.D.
U.B.C.	*50%	2.5%	2.5%	—
Alta	19%	4%	2.%	—
Sask	14.3%	—	—	—
Man	27%	—	—	—
U.W.O.	35.7%	5%	1.7%	1.7%
Toronto	28.3%	—	3.9%	.8%
McGill	67%	—	3%	
Montreal	15%	—	—	—
Laval	4%	—	—	—
Dalhousie	56%	4%	12%	–

Question 22 What percentage of your first year class have the following years of University level training (1977-1978)?
Answer 22

School	1 year Predent	2 years Predent	3 years Predent	4 years Predent	5 years Predent
U.B.C.	—	—	45%	35%	20%
Alta	—	56%	22%	22%	—
Sask	28.6%	38.1%	4.7%	28.6%	—
Man	39%	27%	6%	27%	—
U.W.O.	—	39.3%	28.6%	25%	7.1%
Toronto	10%	30%	28%	32%	—
McGill	5%	5%	20%	67%	3%
Montreal	—	82%	—	3%	15%
Laval	45%	51%	4%	—	—
Dalhousie	—	16%	24%	32%	28%

Question 23 Has the *percentage* of students *with a degree* increased in recent years?
Answer 23 5 schools — yes and 5 schools — no

Question 24 Do you base a candidate's *academic qualifications* mainly on (a) average on pre-requisite courses; (b) average on all courses taken at University; (c) average on sciences courses; (d) average on all courses taken during last full academic year
Answer 24 4 schools include a and/or b; 4 schools include b and/or c; 1 school — best two years, emphasis on sciences; 1 school — approximately 25% each for a, b, c, and d.

Question 25 In which category must a student generally be ranked to be considered favourably for admission?
Answer 25 Top 1/5 — 4 schools; Top 1/3 — 4 schools; Top1/4 1 school; Abstention — 1 school *(Comment* The school abstaining doesn't use ranking as one of its criteria)

Question 26 If a candidate's *academic record has steadily improved* but is not exceptional, do you show additional interest?
Answer 26 8 schools — yes and 2 schools — no

Question 27 With regard to DAT scores, on which *two or three* components do you place the *most value?* Please indicate the *minimum acceptable scores* for these components.
Answer 27

School	READ COMP	BIOL	INORG CHEM	SCI AV	ACAD AV	PMAT 2D	PMAT 3D	PMAT AV	CARV DEXT	MAN AV
U.B.C.						4	4		4	
Alt	4								4	
Sask			Will be required for 1979-1980 entering students							
Man								4	4	
U.W.O.								4	4	
Tor	3							4	4	
McGill						5	5		5	
Montreal									4	
Laval						4	4		4	
Dalhousie						No min	No min		No min	

Question 28 What percentage does the Dental Aptitude Test receive in your *total selection criteria?*
Answer 28 U.B.C. — 10%; Alta — none below 4 accepted; Sask — N/A (1979-1980 — 10% to begin with); Man — screening mechanism; U.W.O. — major determinant; Toronto — 33%; McGill — 30%; Montreal — none accepted below level 4 — screening only; Laval — 50%; Dalhousie — 10%

Question 29 Would you consider placing a greater weight on the Dental Aptitude Test results, if more statistical information was made available on the reliability of the scores?
Answer 29 9 schools — yes; and 1 school — no (used only to screen out those below a minimum of 4 for component utilized)

PART IV — THE INTERVIEW OF APPLICANTS

Question 30 Which candidates receive an *interview* prior to admission?
Answer 30 3 schools — no one; 3 schools — all qualified candidates; 2 schools — all promising candidates; 1 school — some promising candidates (interviews are voluntary); 1 school — candidates who are well recommended but average low academically and on DAT results

Question 31 Are candidates interviewed by: (a) the whole admissions committee? (b) smaller interviewing teams?
Answer 31 (a) None of the schools (b) 7 schools

Question 32 If candidates appear before smaller interviewing team(s) please elaborate on their composition.
Answer 32 4 schools include one or two faculty members, a lay person and/or practising dentist, and a student; 2 schools include faculty members only — two or three in number; and 1 school — no interview required and voluntary and managed ad hoc

Question 33 Does your interviewing committee follow a consistent format with each candidate?
Answer 33 (a) length of time: 6 schools — yes; and 1 school — no; (b) type of questions: 6 schools — yes; and 1 school — no

Question 34 Is there one or more person(s) who takes part in all interviews?
Answer 34 4 schools — yes; and 3 schools — no

Question 35 What is the purpose of interviewing the candidates?
Answer 35 An attempt to estimate the suitability of the person who wishes to enter the profession, based on their ability to communicate, personality, attitudes, apparent maturity, general knowledge or interests and interpersonal ability under interview conditions.

PART V — THE FINAL EVALUATION

Question 36 Indicate your priorities in selecting candidates for admission.
Answer 36 For the majority, the criteria in order of importance appears to be: overall university and/or relevant science subject averages; DAT scores — (selective); interviews where utilized; letters of recommendation

Question 37 In evaluating all material on the candidate, do you follow a certain point system?
Answer 37 8 schools — no; and 2 schools — yes

Question 38 Do you require candidates to undergo and to meet minimum criteria in any of the following before acceptance to dental school?
Answer 38 (a) General physical examination: 5 schools — yes; and 5 schools — no (b) Dental Examination: 7 schools —

no; 1 school — yes; 2 schools — no reply (c) Opthalmic examination: 7 schools — no; 2 schools — yes; 1 school — no reply (d) Other — 1 school — appareil ortho-rater- B.W. audiometrie

PART VI — COMMENTS REQUESTED ON SEVERAL POINTS OF INTEREST

Question 39 Students with best marks occasionally "miss the boat". Any ideas on how to rectify this?
Answers received: if they miss the boat there is a good reason — dentally speaking they may not be the cream of the crop; greater emphasis on the interview and DAT may correct this; need to identify personality problems at an early stage and counsel them; one cannot determine interest, enthusiasm, motivation, and dedication until in the undergraduate dental program.

Question 40 Do you have any thoughts on the steadily increasing predental period? Is there any evidence that students with degrees do better than good undergraduates?
Answers received: no firm or statistical evidence that students with a degree do better; some feel that a longer predental period is inevitable, allows the inclusion of some of the general basic biological sciences in that time period and allows more time for the application to dentistry and inclusion of new knowledge, etc. in the dental program; some feel strongly that the predental period should not be extended and that we scrutinize carefully the general aspects of the biological sciences we now teach and make them more relevant; a proper emphasis on all aspects of control and prevention of disease and how to better manage people and behavioral problems, could reduce the time required for the clinical practice of selected disciplines; due to the numbers game, many entering students have well beyond the minimum university background required. Maturity can be anticipated in students with broader backgrounds but so can one expect frustration and/or anger and/or undesired attitudes when it takes 2-4 attempts before students are accepted into a dental school

Question 41 With the increasing variety of opportunities open to dentists upon graduation, is it time we accepted students from more diversified predental backgrounds?
Answer 41 Most schools sense that students are coming from diversified backgrounds but that these should include the science courses we consider essential, or their equivalent.

Question 42 During the past year, it would appear that applications to dental faculties are decreasing in number. What do you feel are the reasons for this trend?
Answers received: the trend of dental faculties to accept primarily "in province applicants" (out of province applicants stop applying to faculties); students may become discouraged because of the high academic standards required and a critical level of performance for the Dental Aptitude Test; the cost of a dental education and setting up in private practice; the profession is subject to increasing government control; the wide variety of educational and employment opportunities available to students before, during and following University experience; there are numerically fewer candidates per demographic area.

CONCLUSION

Some apparent trends from these survey results include: 1. A much wider representation on admission committees is evident from the University academic and administrative community, and includes dental students, the profession, and the beginning of representation from lay persons, to compliment the dental faculty on admissions committees and/or interviewing teams. 2. A continuing desire to improve the approach to and criteria for evaluating candidates for acceptance; and the provision of a formal set of criteria on which to base screening and/or nonacceptance procedures. 3. The majority of schools are interviewing some or all applicants, utilizing small interview teams, and attempting to regularize both the allotted time and questioning format for candidates. 4. By the 1979-1980 academic year, *all ten schools* will require the D.A.T. as part of their *entry requirements.* There is a *selective use of the components,* with the majority of schools using the carving dexterity score coupled with the PMAT 2D and 3D scores or average PMAT score for screening purposes, and/or as a percentage of the final evaluation process. All schools are prepared to consider giving greater weight *to DAT scores* with increased evidence of reliability. 5. Criteria for selection in order of importance: (a) overall university and/or relevant science subjects average; (b) selective DAT scores; (c) interview results; (d) letters of recommendations especially from previous teachers. 6. The majority of schools do not appear to follow a set point system when evaluating the candidates' documentation nor does there seem to be a preference for accepting students who already have a degree.

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Dr. Ernest Ambrose

Les tests d'aptitudes aux études dentaires procurent de précieux renseignements qui permettent de mieux choisir les candidats aux études dentaires. Le présent exposé passe en revue la documentation pertinente, les difficultés relatives à la validation des tests d'aptitudes et certaines lignes de conduite quant à l'interprétation des résultats des tests.

The Dental Aptitude Test — Its Application in Admissions

Marcia A. Boyd, DDS, MA
Walter R. Teteruck, BSc, DDS, MSD

Table I

Composition of the Dental Aptitude Test

CANADA	UNITED STATES
Academic:	**Academic:**
reading comprehension	reading comprehension
	quantitative reasoning
	verbal reasoning
	organic chemistry
inorganic chemistry	inorganic chemistry
biology	biology
science average	science average
academic average	academic average
Manual:	**Manual:**
2D	2D
3D	3D
PMAT average	PMAT average
chalk carving	
manual average	
Personality: 16PF (1974)	

As a recent survey conducted by CDA's Dental Aptitude Test (DAT) Committee shows[1], there is no universally accepted method of student selection in Canadian dental schools. Data collected and evaluated, including undergraduate predental grades, DAT scores, letters of recommendation and, perhaps, a personal interview is, however, fairly constant.

The high cost of professional education means admissions committees must be accurate in their selection of students who will succeed in dentistry. The Dental Aptitude Test was therefore instituted in 1950 in the United States and 17 years later, the first test was used in Canada.

In 1972, the Perceptual Motor Ability Test (PMAT)[2-3] was introduced as a substitute for the chalk carving test. But with 25 years of the chalk carving test use by the American Dental Association its construct validity was established[4-5] and Canadian dental schools expressed concern about the validity and interpretation of PMAT scores. Chalk carving was reinstated in Canadian DAT in January, 1975. A comparison of the American and Canadian test batteries, as they now exist, is shown in Table I.

PROBLEMS OF VALIDATION

The validation of aptitude testing is both difficult and complex. The first problem is that of dealing with a restriction of range. The DAT is administered to a large group of applicants whereas the correlation studies done subsequently must be performed on a much smaller select group — those who are admitted to dental school. If all applicants were admitted the variance of scores for both predictors and criteria would be much greater thereby leading to higher correlations. But, with a restricted sample the resulting correlations are generally lower.

The second problem is the restriction of variance and the reliability of the criterion scores. Often the discriminating power of many courses is low, most grades being within a small range. When this occurs the variance in the criterion scores is so restricted that only small correlations can be expected. Reliabilities of course grades, particularly technique courses, are rarely measured or reported. It is suspected that in some cases these reliabilities are quite low, which has the effect of lowering correlations when these grades are used as the criterion variable.

Another problem exists in the great difference in evaluation systems. A first class grade in a course in one dental school can mean something entirely different in another course or school. Similarly no matter how good our evaluation technique, it is impossible to eliminate measurement error. When grades are pooled and transformed into a standard format for analysis more error results. Clustering of subtests or computing averages can result in less predictive ability.

Finally, most dental course grades are a combination of a theory and a manual component while the DAT manual and academic portions are measured separately. This can further affect the magnitude of the correlations.

Due to these complicating factors, the correlations that exist between the DAT and predental grades of the DAT and dental school grades, although often significant, are usually weak.

PREDICTION STUDIES

Many[6-11] claim the predental average is the best single and most consistent predictor of success in dental school. Chen[7] points out however, that although it is the most efficient it also is unreliable because of its biased and subjective nature. Ross[12] feels the entering predental average is a good estimate of a student's ability to cope with the basic sciences but has little value in predicting overall success.

Conversely, Manhold and Manhold[13] found that the DAT Academic Average was best, followed by the predental average. Later,[14] they stated that the DAT per se, was more efficacious than any of its parts in predicting four year performance. Dworkin's[15] regression

analysis yeilded the best predictors, in decreasing order, as DAT Chemistry, predental grade point average, years of undergraduate attendance, and DAT Space Relations. Ross[12] found a consistent correlation when he combined the predental average and DAT to predict success. Others[8,9,11] concurred.

Although the predictive validity of the PMAT and Chalk Carving are similar,[5] an undeniable desire exists to require some measure of technical or digital ability. The criteria measured in the chalk carving test are sharpness of angles, flat planes, and symmetry and accuracy relative to the given diagram in the instructions. It is important to note however, that the true purpose of the Chalk Carving test was not to predict success in technique courses, but rather to enable admissions committees to eliminate the inept[16].

Grainger[17] believes chalk carving measures conceptualization and deftness of instrumentation while Zullo [18] defines it as measuring a specific ability he terms, "small instruments dexterity factor". Chen [7] believes it measures a factor related to temperament rather than digital skill.

Many investigators[19-24] have found a positive correlation between chalk carving and preclinical technique courses. Chebib[22] and Smith [25] found it to be a good predictor of clinical performance. Chalk Carving proved to be a better predictor of manual performance than the Space Relations test, either alone or in combination with chalk carving.[14,26] Practically speaking Grainger [17] found that individuals with a score of four or more on chalk carving rarely showed manual failures throughout the dental curriculum.

The PMAT is composed of a two dimension (2D) and three dimension (3D) subtest. Graham[5] stated that the substitution of the PMAT for Chalk Carving would in no way diminish the predictive effectiveness of the DAT. Each test is as good as the other but not necessarily better. Others [18,27] believe the PMAT and Chalk Carving measure two different constructs and that the PMAT does not measure motor ability. Factor analysis of the PMAT by Graham[28] indicated that of seven subsets there were five or possibly six independent factors being measured. They were block design, space relations, lines, sequence of ideas, 3D drawings and passing an object through an aperture.

Graham[5] found the PMAT to be equally as predictive as Chalk Carving in five separate studies in the United States. The PMAT shows weak but significant correlations with preclinical technique courses[23,24] and the 3D subtest exhibits a slight ability to predict preclinical and clinical grades.[29] The variable direction of the PMAT correlations, both 2D, 3D, and the average, in predicting clinical performance leads Wood[24] to believe these scores are not particularly helpful. The most recent United States national correlation study[30] shows a wide range of correlation between PMAT and technique grades even though 21 of 33 schools reported significant positive correlations. Some schools showed low negative or no correlation. Where no correlation existed, the report suggested that the technique grade contained a substantial degree of didactic variance. Smith[31] points out that the absence of a minimal level of spatial ability makes success in the practical aspects of dentistry less likely. Unfortunately, he does not define "minimal."

When the PMAT Average (2D and 3D) and Chalk Carving are combined

Table II

Factor Analysis Studies

AUTHORS AND YEAR OF STUDY	SAMPLE STUDIED	VARIABLES	RESULTS
Dworkin, 1970[36]	New York School of Dentistry N=123, 1966	13 DAT scores	1. Science factor, loadings by biology, chemistry, factual science, science application, total science, reading 2. Manual factor, loadings by Manual Average, Spatial Relations, Carving Dexterity
Zullo, 1971[37]	University of Pittsburgh N=111, 1968 69	7 DAT subtests	DAT MEASURES: 1. Verbal Science 2. Abstract reasoning 3. Carving dexterity
Zullo, 1971[18]	University of Pittsburgh N=100, 1968/69	PMAT	Space Relations loaded on different factors from PMAT, PMAT did *not* load on dexterity factors
Full and Foley, 1971[38]	University of Iowa N=119, Freshmen 1967, 1968	DAT averages Anatomy Predental GPA 1st year GPA	1. Academic potential 2. Dexterity and space 3. Anatomy survival
Houston, 1974[39]	U.C.L.A. N=370, 1964-68	PreprofessionalGPA, DAT scores, many more variables	GPA, National Boards best predictors of overall performance. First two years and academic performance better predicted than preclinical and later performance
Graham, 1974[28]	Randomly sampled from 1973 U.S. DAT Program, N=1163	PMAT items	FACTORS MEASURED: 1. Block design 2. Length of lines 3. 3D drawing 4. Space relations 5. Sequence of ideas 6. Passing object through hole

the resultant score is the Manual Average. This score is no longer available for United States studies, but recent Canadian studies[22,24,32] show a significant correlation with preclinical grades.

Some applicants repeat the DAT. Generally there may be a slight improvement[27,33] on the first repeat but it is not significant overall[16]. The particular test score that shows definite improvement is the PMAT score[16,34]. This is explained by practice effect since most candidates are not familiar with the test format. In order to reduce the practice effect and allow students to prepare adequately for the exam, and to discourage commercial exploitation of similar material, a manual is now issued to each applicant giving examples of questions from each subtest plus directions and an illustration of the Chalk Carving test.

DISCUSSION AND CONCLUSION

As can be noted in Tables II and III, the lack of standardized criteria used for investigation creates difficulty when attempting to apply results to admissions procedures. Perhaps we are asking too much of the DAT to predict grades in dental school which are undoubtedly complex and unreliable considering the variance among courses, instructors and dental schools. Tests given in dental school are quite different from a broad-based, objective, norm-referenced nationally administered test such as the DAT. As well, preprofessional grades may reflect motivational factors which influence subsequent performance in dental school, whereas DAT academic scores may constitute a more unitary measure of achievement and scholastic aptitude.

The PMAT and Chalk Carving tests are the only source of information with respect to perceptual and motor skill aptitude. Although Chalk Carving can explain only a small degree of the variance in technique grades, it is the best predictor that is available. An average score of four, established as a cut-off, will certainly not guarantee a student will succeed, however, it will most likely result in student success as false positives are almost impossible to achieve.[17]

Preprofessional grades, although subjective and often unreliable, are readily available and consitute the best predictor of overall performance in dental school. Performance differences that exist between males and females are not large or consistent enough to be considered significant.[35] However, preprofessional grades complemented by the DAT academic portion, can increase the accuracy of prediction. Yancey[29] suggests that a cutoff level of three for the DAT Academic Average could be used with little risk of student failure. Wood[24] showed that the value of correlation coefficients for preprofessional grades and DAT Chalk Carving of Academic Average as predictors is similar. Thus equal emphasis should be placed on these predictors.

It has also been noted by some[12,15,32] that predictability varies from class to class and among schools. Therefore it is important that validation studies be performed in each school to determine how students perform in that dental school's particular sub-culture and curriculum.

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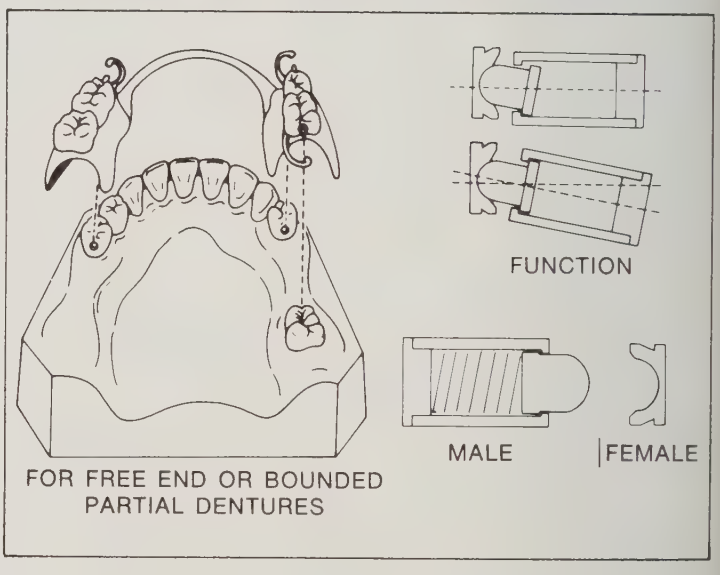

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Table III

Prediction Studies

AUTHORS AND YEAR OF STUDY	SAMPLE STUDIED	PREDICTOR VARIABLES	CRITERION VARIABLES	MAIN FINDINGS AND CORRELATIONS
Parkin, 1958[40]	National population, 1955 freshmen	Preprof. GPA, DAT Academic and Manual Average, DAT subtests	Freshmen technique and theory GPA	Correlation of .34 between preprof. grades and theory grades; correlation of .28 between DAT Academic Average and theory grades
Tocchini, Endy, Thomassen and Reinke, 1961[41]	University of the Pacific, N=148 graduating classes 1955-57	Age, prereq. and preprof. GPA	Four-year dental school GPA	Correlation not reported; preprof. GPA better predictor, then DAT Academic Average
DeRevere, 1961[19]	University of Pennsylvania class of 1959	Space Relations, Chalk Carving	1st year operative technique grades, 4th year clinical operative grades	.37 and .39 between 1st year operative and Chalk Carving and Space Relations respectively. .26 between 4th year clinic and Chalk Carving. Same for Space Relations
Hood, 1963[42]	University of Minnesota, N=300 freshmen 1957-60	Preprof. GPA, DAT Academic Average, and subtests, preprof. college attended. Years of preprof. education, age, marital status	Freshmen overall theory and technique grades	.49 correlation between preprof. GPA and overall dental GPA; .51 correlation between preprof. GPA and theory GPA in dental school; correlation of .36 and .33 between DAT Academic Average and overall and theory GPA in dental school
Manhold and Manhold, 1965[13]	Seton Hall N=134-140, graduating class 1960-1964	DAT Academic and Manual Average, preprof. science and nonscience GPA, preprof. overall GPA	Four-year dental school overall GPA, basic science GPA, preclinical and clinical GPA	.32 between DAT Academic Average and basic science in dental school, preprof. science grades correlated .22 and .40 with basic science GPA in dental school
Heller, Carson and Douglas, 1965[6]	University of Illinois N=88, 1961; N=87, 1962; N=78, 1963	DAT: Manual and Academic Average, preprof. and science, non-science, GPA, preprof. total hours, total science and non-science hours	1st year overall, theory and technique grades	DAT Academic Average correlations from .22 to .27 with overall GPA in dental school; DAT Academic Average significant correlation with theory grades in only one of three classes. Correlations high between all categories or preprof. grades and criterion variables, e.g. .61 for 1961 between predental grades and theory grades in dental school
Ginley, 1966[20]	National population random sample N=500 senior students, 1962, 1964	DAT: Manual and Academic Average, DAT subtests	Senior theory and technique grades	Correlations of .21 for 1962 and 1964 between DAT Academic Average and theory grades. All DAT scores except Space Relations in 1962 correlated significantly with theory grades. Correlations ranged .06 to .23
Manhold and Manhold, 1967[14]	Seton Hall 8 year study	DAT academic and manual, general science grades, overall average	Basic sciences, Preclinical dental sciences, clinical av., final standing	Chalk predicted preclinical and clinical performance better than Space Relations
Fernadez-Pabon 1968[43]	University of North Carolina, N=40, 1955; N=49, 1965; N=47, 1966	Overall college average, overall college science average, total college and science credit hours, DAT Manual and Academic average, DAT subtests	1st and 4th year total GPA, basic science GPA, laboratory technique GPA	No statistically significant correlations between preprof. grades or academic DAT with four year GPA; overall college grade best predictor of basic science GPA (significant correlation of .50 and .28 for 1955 and 1966 classes)

Table III (Cont'd)

AUTHORS AND YEAR OF STUDY	SAMPLE STUDIED	PREDICTOR VARIABLES	CRITERION VARIABLES	MAIN FINDINGS AND CORRELATIONS
Phipps, Fishman, Scott, 1968[44]	University of Buffalo, N=361, graduating class 1960-63	Preprof. required GPA, elective and total GPA, DAT Academic and Manual average, DAT subtests	Freshmen and senior school, GPA	Correlations of DAT Academic Average with 1st and 4th year dental students .19 and .20. Total preprof. grades correlated .41 and .39 with 1st and 4th year grades. Total pre-prof grades better predictor of success than required or elective GPA
Kreit and MacDonald, 1968[8]	Indiana University N=510, graduating class 1956-63	Preprof. grades, DAT Academic and Manual Average, DAT subtests	Dental school GPA, National Boards, Part I and Part II	Correlation of .38 between preprof. grades and overall dental school GPA. Correlations of .24 between DAT Academic Average and dental school grades
Dworkin, 1970[15]	New York University N=134, 1966	Preprof. GPA, year of preprof. education, DAT Manual and Academic Average, DAT subtests	Each of four years theory and technique grades, freshmen dental school GPA and overall class standing	Significant correlations of .25 and .43 between DAT Academic Average and first and second year theory grades. Correlations of .19 and .24 between preprof. grades and first and second year theory grades
Grainger, 1972[26]	Canadian National Population	All DAT scores		Chalk Carving can give false negatives but not false positives
Bellanti, Mayberry, Tira, 1972	UMKC, N=344, 3 years	DAT Carving and Space Relations, DAT general achievement, preprof. GPA	Preclinical fixed prosthodontics grades	Chalk Carving correlated .37 with technique grades
Chebib, 1974[22]	University of Manitoba, five classes	11 DAT scores chemistry, physics, biology, predentistry GPA	Didactic and laboratory average, clinic average for each year and for all years	Manual Average and first year laboratory .46 and second year laboratory .42. Chalk Carving correlated .36 to .45 with laboratory or clinic for all four years
Thompson, 1975[33]	Canadian National Population N=859	All DAT scores		PMAT and Chalk Carving .36 with each other
Thompson, 1977[23]	Canadian National Population N=404	DAT scores	Freshman and didactic pre-clinical average	Chalk and preclinical .19; PMAT and preclinical .15
Wood, 1978[24]	University of British Columbia N=312, 1969-76	Prereq. and overall average all DAT scores	Course grades, year averages, operative and fixed prosth. technique grades	Overall average, .36 with first year average, .29 with second year average. Chalk Carving .24 with third year average and range .20 to .40 for five psychomotor oriented courses. Manual Average .21 with second year and .30 with third year average

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ANNOUNCEMENTS AVIS

We urge readers to confirm meeting dates with the contact listed with each announcement.

CANADIAN DENTAL ASSOCIATION, 1979 National Convention, Quebec City, September 9-12. Contact: Dr. Clément Caron, Convention Chairman, 1979 CDA National Convention, 1575 St. Louis Road, Sillery, Quebec G1S 1G4. Telephone: (418) 527-8969 or 687-5271.

ASSOCIATION DENTAIRE CANADIENNE, Congrès national 1979, Québec. 9-12 septembre. Pour renseignements: Dr. Clément Caron, directeur général. congrès 1979 de l'ADC, 1575 chemin St-Louis, Sillery. Québec G1S 1G4. Téléphone: (418) 527-8969 ou 687-5271.

SEPTEMBER

INTERNATIONAL COLLEGE OF DENTISTS RECEPTION FOR NEW FELLOWS, WIVES, SPONSORS AND SECONDERS, Presidential suite, Chateau Frontenac Hotel, Quebec City, Que., Saturday September 8, 1979, from 4 — 5:30 p.m. Contact: Dr. W.J. Spence, 300 Yonge Street, Suite B1, Toronto, Ont. M4N 2K5.

CANADIAN ASSOCIATION OF ORTHODONTISTS, 31ST ANNUAL MEETING AND CONVENTION, Hotel Frontenac, Quebec City, September 8-9, 1979. Contact: Dr. R. Faith, 605-1538 Sherbrooke Street West, Montreal, Quebec, or Dr. J.J. Schachter, Box 952, Saskatoon, Saskatchewan S7K 3M4.

CANADIAN ACADEMY OF ENDODONTICS, 1979 Annual Meeting, Quebec City, Quebec, September 8-9, 1979. Contact: Dr. Jean Claude Giguere, 1575 chemin St. Louis N., Sillery, Quebec G1S 1G4.

CANADIAN ASSOCIATION OF ORAL AND MAXILLOFACIAL SURGEONS ANNUAL MEETING, Quebec City, September 8-11, 1979. Theme: Maxillofacial Trauma. Contact: Dr. Victor Goodyer, 565 St. Jean, Quebec City, Quebec G1R 1P5.

CANADIAN ACADEMY OF ORAL RADIOLOGY ANNUAL MEETING, Quebec City, September 9, 1979. Contact: Dr. A. Ruprecht, Department of Diagnosis and Oral Radiology, University of Saskatchewan. Saskatoon, Saskatchewan S7N 0W0.

ROYAL COLLEGE OF DENTISTS OF CANADA SYMPOSIUM, Chateau Frontenac Hotel. Quebec City, September 9-10, 1979. Theme: "1979 — The International Year of the Child: Dental Perspectives." Speakers are from Denmark, Switzerland, the United States and Canada. Contact: Dr. C.L.B. Lavelle, Program Chairman, RCDC Symposium. Faculty of Dentisry, University of Manitoba, Winnipeg, Manitoba R3E 0W3.

39TH ANNUAL CONVENTION OF THE NORTHERN ONTARIO DENTAL ASSOCIATION, North Bay, Ontario, September 14 — 16, 1979. Contact: Dr. Yosh Kamachi, secretary-treasurer, Northern Ontario Dental Association, 161 Main Street East, North Bay, Ontario P1B 1A9.

OCTOBER

CANADIAN SOCIETY OF FORENSIC SCIENCE ANNUAL MEETING, Ritz Carlton Hotel, Montreal. October 15-19, 1979. Two-day symposium on Dentistry and the Law will be held the 15th — 16th. Contact: Dr. R.B.J. Dorion, president, Canadian Society of Forensic Science. Suite 710D, Sun Life Building, Montreal, Quebec H3B 2V6.

NOVEMBER

TORONTO ACADEMY OF DENTISTRY Annual Winter Clinic, Royal York Hotel, Toronto, November 22, 1979. Contact: Academy of Dentistry, 234 St. George Street, Toronto, Ontario, M5R 2P2.

INTERNATIONAL MEETINGS

SEPTEMBER

INTERNATIONAL ASSOCIATION FOR ORTHODONTICS New Orleans, LA., U.S.A., September 12-15, 1979. Contact: Ms. Joanna Carey, 645 N. Michigan Avenue, Suite 522, Chicago, IL 60611, U.S.A.

AMERICAN ASSOCIATION OF ORAL AND MAXILLOFACIAL SURGEONS Annual Meeting, New Orleans, LA., U.S.A., September 14-18, 1979. Contact: AAOMS, 211 East Chicago Avenue, Chicago, IL 60611, U.S.A.

AMERICAN SOCIETY OF PSYCHOSOMATIC DENTISTRY AND MEDICINE, Miami, FL U.S.A., September 15-16, 1979. Contact: Dr. Leo Wollman, 2802 Mermaid Avenue. Brooklyn NY 11224, U.S.A.

INTERNATIONAL ACADEMY OF GNATHOLOGY, Coronado, California, U.S.A., September 18-23. 1979 Contact: Dr. Charles G. Eller. 422 Palm Avenue, La Mesa, CA 92041 U.S.A.

SIXTH INTERNATIONAL CONFERENCE ON ENDODONTICS, Philadelphia (University of Pennsylvania Centennial Scientific Symposia) U.S.A., September 21-24, 1979. Contact: Dr. W. Walter Cohen. School of Dental Medicine

Oral Surgeons 20 years later

The idea of forming a Canadia Society of Oral Surgeons began mor than two decades ago with member of the Ontario Society of Oral Sur geons who could see the need for forum of discussion of surgical prob lems, ethics, graduate education i a national organization.

The first organizational meetin was held in Montreal during th time of the Canadian Dental As sociation Meeting of 1953. Th Society has since scheduled all it annual reunions to coincide with th national convention.

The following year, the Societ had its by-laws approved by th Board of Governors of CDA. Th 'Founders' Roll' of 15 dentists con sisted of full professors or oral sur gery in Canadian dental schools an other dentists who had specialize in oral surgery for 25 years or more

By 1956, there were 25 active an two honorary members. During th 1956 annual reunion, Dr. John Cla was granted honorary membershi in recognition of his fiftieth yea in practice.

In 1978, with a membership o more than 125 members, seven lif members and three honorary mem bers, the Society came of age wit the new name, the Canadian As sociation of Oral and Maxillofacia Surgeons.

4001 Spruce Street. Philadelphia, PA 19104, U.S.A.

AMERICAN SOCIETY OF PSYCHOSOMATIC DENTISTRY AND MEDICINE, San Diego, California. U.S.A., September 25, 1979. Contact: Mr. Leo Wollman, 2802 Mermaid Avenue, Brooklyn, NY 11224, U.S.A.

38TH ANNUAL MEETING OF THE JAPAN ORTHODONTIC SOCIETY, Sapporo, Japan. September 25-27, 1979. Contact: professor Shinki Nakamura. Hokkaido University, School of Dentistry, Nishi 7-chome, Kita 13-jo. Kita-ku, Sapporo, Japan.

ORAL-FACIAL ANOMALIES: RESEARCH AND MANAGEMENT, Philadelphia. PA, (University of Pennsylvania Centennial Scientific Symposia) U.S.A., September 26-30, 1979. Contact: Dr. W. Walter Cohen, School of Dental Medicine, 4001 Spruce Street. Philadelphia, PA 19104, U.S.A.

NEW ORLEANS DENTAL CONFERENCE, New Orleans, La., U.S.A., September 27-30, 1979. Contact: Dr. Peter L. Glaser, 2121 N. Causeway Blvd., Suite 272, Metairie, LA 70001, U.S.A.

OCTOBER

FIRST INTERNATIONAL CONGRESS ON HORMONES AND CANCER, Rome, Italy, October 4-6, 1979. Contact: professor S. Iacobelli, Laboratori di Endocrinologia Molecoloare. Instituto de Clinica Osterica e Ginecologica, Universita Cattolica, Via Pineta Sacchetti, 644-00168 Rome, Italy.

AMERICAN ASSOCIATION OF HOSPITAL DENTISTS, Denver, Co., October 4-7, 1979. Contact: Dr. George A. Kentros, University of Alabama. School of Dentistry, 1919 Seventh Avenue South, Birmingham, AL 35294, U.S.A.

AMERICAN INSTITUTE OF ORAL BIOLOGY, Palm Springs, California, U.S.A., October 6-10. 1979. Contact: Mrs. Barbara P. Ward, P.O. Box 481, South Laguna, CA 92677, U.S.A.

NEW YORK STATE ACADEMY OF DENTAL PRACTICE ADMINISTRATION MEETING, Toronto. Ont., Can., October 12-13, 1979. Speaker: Dr. Harold Wirth of New Orleans. Contact: New York State Academy of Dental Practice Administration, 1736 Mount Hope Avenue, Rochester, NY 14620, U.S.A.

DENTAL SECTION OF THE AUSTRIAN MEDICAL PRACTITIONERS ASSOCIATION and the Austrian Technicians Society, Vienna. October 12-15, 1979. Contact: Bundesfachgruppe fur Zahn-Mund-und Kieferheikunde der Osterreichischen Arztekammer, Weinburggasse 10-12 Vienna, Austria.

AMERICAN ACADEMY OF IMPLANT DENTISTRY, Dallas, TX U.S.A., October 15-20, 1979. Contact: Mr. John P. Winiewicz, 469 Washington Street, Abington, MA 02351, U.S.A.

AMERICAN ACADEMY OF GOLD FOIL OPERATORS, Dallas, TX U.S.A., October 18-19, 1979. Contact: Dr. Jack G. Seymour, 3532 E Shields, Fresno, CA 93726, U.S.A.

AMERICAN ACADEMY OF DENTAL RADIOLOGY, Dallas, TX U.S.A.,

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OBITUARIES

ARBOUR, Hervé, décédé 7 mai 1979 à St-Laurent, Québec.

CHALMERS, J.G., died May 16, 1979. Graduated University of Toronto, 1929.

DANSEREAU, Hector, décédé 29 juillet à Montréal, Québec.

DECKER, W.B.L., graduated Dalhousie University, 1954. Died June 3, 1979.

EPSTEIN, I., graduated University of Toronto, 1973. Died May 13, 1979.

GUEVREMONT, Paul, à Longueuil, Québec. Décédé novembre 1978.

IRONSTONE, Ray Raymond, graduated McGill University, 1932. Born in Montreal in 1902, practised in Rouyn/Noranda until retirement in 1972. He is survived by his wife Toby, daughters Vivian and Marilyn of Sudbury and son, Dr. Norman Ironstone of Ottawa.

McCURRY, F.J.A., Midland, Ontario. Graduated University of Toronto, 1953. Died May 6, 1979.

MIGNAULT, Jean, Université de Montréal, 1940. Décédé 3 avril 1979.

MUNRO, Donald Hugh, graduated University of Toronto, 1925. Practised in Vancouver, British Columbia until retirement in 1974. President of British Columbia Dental Association, 1942-1943 and editor of B.C. Dental Bulletin in 1975. Died May 4, 1979.

L'histoire d'une association . . .

L'idée de constituer une société canadienne des spécialistes en chirurgie buccale remonte à plus de 20 ans, alors que les membres de l'Ontario Society of Oral Surgeons se mirent à chercher un moyen de faciliter les échanges de vues avec leurs collègues d'autres coins du pays sur des problèmes de chirurgie buccale, des questions d'éthique et le perfectionnement professionnel.

La première réunion d'organisation eut lieu à Montréal, à l'occasion du congrès de 1953 de l'Association Dentaire Canadienne. Depuis ce temps, la Société a toujours fait coïncider ses congrès avec ceux de l'ADC.

L'année suivante, la Société fit approuver ses statuts par le conseil d'administration de l'ADC. Les quinze dentistes fondateurs étaient des professeurs de chirurgie buccale dans des écoles canadiennes de dentisterie ou des dentistes spécialisés en chirurgie buccale depuis 25 ans ou plus.

En 1956, la Société comptait déjà 25 membres actifs et deux membres honoraires. C'est à l'occasion du congrès de 1956 que le Dr John Clay se vit reçu membre honoraire pour son cinquantième anniversaire de pratique.

En se dotant de son nouveau nom en 1978, l'Association canadienne des spécialistes en chirurgie buccale et maxillofaciale manifestait son plein épanouissement: ses effectifs se chiffraient alors à plus de 125 membres, sept membres, à vie et trois membres honoraires.

CONTINUING EDUCATION

Université de Montréal

a/s Guy Boyer, Service d'éducation dentaire permanente, Case Postale 6209, Succursale "A" Montréal, Québec H3C 3T9

"Améliorez votre photographie clinique"

Vendredi, le 12 octobre 1979
les docteurs Morris Wechsler et Claude Remise.
Ce cours comportera une partie pratique, lors de laquelle les participants prendront des photos qui feront l'objet d'une évaluation à la fin de la journée.

The Newfoundland Dental Association is sponsoring a two-day Continuing Education Course — "Removable Partial Dentures" during the Association's Annual Meeting November 15 and 16. The Corner Brook Dental Group will be holding a course in February, 1980.

University of Toronto

Dr. M. Jackson, Director of Continuing Dental Education, University of Toronto, Faculty of Dentistry, 124 Edward Street, Toronto, Ontario M5G 1G6

1979

1. Pitfalls in Orthodontic Bonding, September 15, 1979
2. Endodontics for the General Practitioner, September 19, 1979
3. Periodontics, Oct. 17, 24, 31 & Nov. 7, 14, 21, 1979
4. Emergency Measures, October 19, 1979
5. Oral Surgery, TBA
6. Dental Care for the Handicapped, November 5-7, 1979
7. Contemporary Endodontics, November 9-10, 1979
8. Current Concepts in Local Anaesthesia, November 15, 1979
9. Clinical Orthodontics, November 23, 1979
10. The Treatment of the Partially Edentulous Patient Using Removable Partial Dentures and Precision Attachments, November 28-30, 1979
11. Infection and Cysts, December 3-4, 1979
12. Emergency Measures, December 7, 1979

1980

13. Dentofacial Trauma, January 16-18, 1980
14. Surgical Endodontics, January 14, 1980
15. Emergency Measures, January 25, 1980
16. Facial Analysis, February 1, 1980
17. Endodontics, February 6-8, 1980
18. The Management of Anxiety, Fear, Pain (AFP) in the Child and Adolescent, February 27-29, 1980
19. White Lesions, Polyps, Benign & Malignant Tumours of the Mouth, March 3-4, 1980
20. Long Cone Paralleling Technique, March 27-28, 1980
21. Preventive Dentistry, April 21-22, 1980
22. Fixed Bridges in General Practice, April 22-25, & May 9, 1980
23. Current Concepts in Paedodontics, April 30, May 1-2, 1980
24. Orthodontics for the General Practitioner, May 5-9, 1980
25. Operative Dentistry, May 12-14, 1980
26. Epidemiology, Statistics and Oral Health Survey Methods for Community Dental Programs, May 15-16, 1980
27. Facial Analysis, June 13, 1980

McGill University

Dr. M. Rennert, Director of Continuing Dental Education, Faculty of Dentistry, 3640 University Avenue, Room M-74, Montreal, Quebec H3A 2B2. Registration Deadline: September 14, 1979.

Medicine and Pharmacology

Thursday, September 27, 1979, "Patient Evaluation and Drug Interaction", Dr. K.C. Bentley and Dr. H. Katz

Periodontics

Thursday, October 25, 1979, "Anatomic Considerations Influencing the Success or Failure of Periodontal Therapy" Dr. S. Galperin and Dr. F. Muroff

Oral Surgery

Thursday, November 15, 1979, "Oral Cancer", Dr. E. Millar

Operative

Thursday, December 6, "Operative Update", Dr. J.V. Bloomfield and Dr. L. Risk

1980

Oral Diagnosis

Thursday, January 17, "The Role of Orofacial Diagnosis in Total Patient Care", Dr. E. Shields and Dr. I. Stangel

Prosthodontics

Thursday, January 31, "Principles for Non-Parallel Abutments and Overdentures", Dr. N. Dibai and Dr. D. Kepron

Orthodontics and Paedodontics

Thursday, March 6, "The Eternal Triangle — Prevention, Interception and Correction", Dr. M. Rennert and Dr. C. Dixter

Restorative

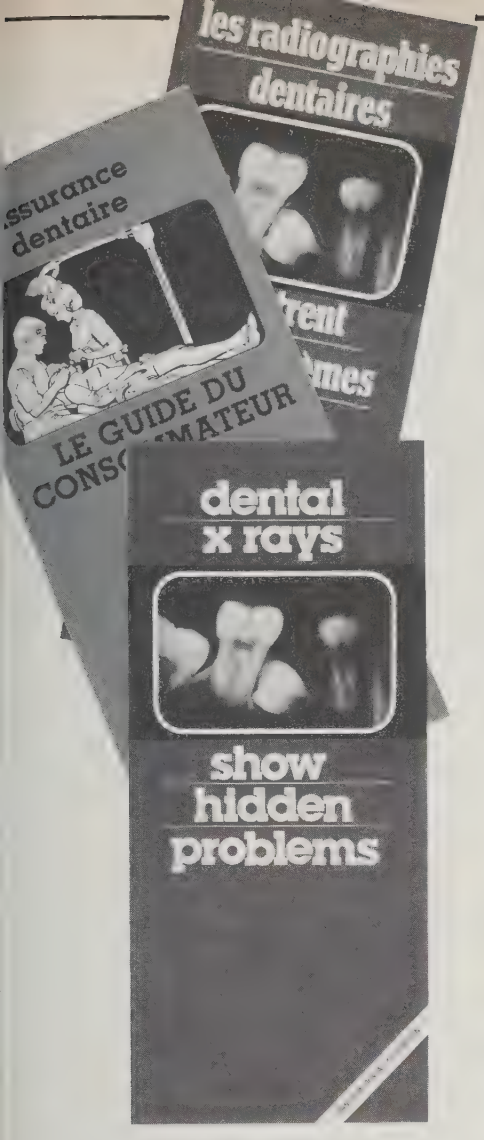
Thursday, April 10, "Restoring the Severely Mutilated Abutments", Dr. H. Rosen and Dr. B. Sedlezky

ADA Workshop

Chicago — The all-day workshop program initiated at the 1977 annual session of the American Dental Association will be expanded during the 120th ADA annual session in Dallas October 21 to 25 covering new ceramic crown techniques to molar endodontics, cast designing and radiology. Theme of the session is "Dentistry's Pride — Service to the Public."

The two-day workshop will review basic principles in canal preparation including calculation of working length, development of apical "stop," and flaring and use of lubricants, on the first day. On the second day, Dr. Franklin Weiner will describe the method used to prepare the very thin and/or sharply curved canals and the use of gutta-percha to fill all canals. This will be followed by a laboratory session at which time all prepared canals will be filled.

The one-day workshop on operative dentistry and fixed prosthodontics will introduce a new method of attaching porcelain to precious metals using tin oxide coatings.



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* Eating Properly For Better Dental Health ($10 per 100)	
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October 18-20, 1979. Contact: Dr. Wm. R. Wege, Medical College of Georgia, School of Dentistry. Dept. of Radiology, Augusta, GA 30902, U.S.A.

AMERICAN ACADEMY OF GOLD FOIL OPERATORS, Honolulu, Hawaii, October 19-20, 1979. Contact: Dr. David A. Grainger, Dept. of Operative Dentistry, Box J-415, JHMHC, College of Dentistry, University of Florida, Gainesville. FL 32610, U.S.A.

AMERICAN COLLEGE OF DENTISTS, Dallas, Tx., U.S.A. October 20, 1979. Contact: Dr. R.J. Nelsen, 7316 Wisconsin Ave., Suite 304, Bethesda, MD 20014, U.S.A.

ALPHA OMEGA FRATERNITY RECEPTION, ADA CONVENTION, Sheraton Dallas Hotel, Sunday October 21, 1979, 9:00 p.m. Contact: Dr. G. Perlmutter, International Secretary, 2838 Dufferin Street, Toronto, Ont. M6B 3S3

FÉDÉRATION DENTAIRE INTERNATIONALE, 67th Annual World Dental Congress, Paris, France, October 20-26, 1979. Contact: FDI, 64 Wimpole Street, London W1M 8AL. U.K.

AMERICAN DENTAL ASSISTANTS' ASSOCIATION, Dallas, TX U.S.A., October 21-24, 1979. Contact: Ms. Patricia Cupkie, 666 Lake Shore Dr., SUITE 1130, Chicago, IL 60611, U.S.A.

AMERICAN DENTAL ASSOCIATION, One Hundred and Twentieth Annual Session, Dallas, Texas. U.S.A., October 21-25, 1979. Contact: American Dental Assoication, 211 East Chicago Ave., Chicago. IL 60611, U.S.A.

ACADEMY OF DENTISTRY INTERNATIONAL, Anaheim, California, October 22-23, 1979. Contact: Dr. Albert Wasserman. 430 San Mateo Dr., Dan Mateo, CA 94401, U.S.A.

AMERICAN ACADEMY OF DENTAL GROUP PRACTICE, Dallas, TX U.S.A., October 24, 1979. Contact: Ms. Joann Junkins, 1709 Elka Lane, Madison, WI 53704, U.S.A.

AMERICAN ACADEMY OF MAXILLOFACIAL PROSTHETICS, New Orleans, La., U.S.A., October 27-31, 1979. Contact: Dr. J.W. Schweiger, V.A. Center, 1601 Kirkwood Hwy., Wilmington, DE 19805, U.S.A.

AMERICAN ACADEMY OF PERIODONTOLOGY, Seattle, WA U.S.A., October 31-November 3, 1979. Contact: Ms. Jean Pierson, 211 E. Chicago Ave., Suite 924, Chicago, IL 60611, U.S.A.

AMERICAN COLLEGE OF PROSTHODONTICS, Houston, Tx., U.S.A., October 30-November 1, 1979. Contact: Dr. Dean L. Johnson, 2708 Old Farm Lane, Edmond, OK 73034, U.S.A.

NOVEMBER

POSTGRADUATE COURSE IN HEAD AND NECK RAIOLOGIC DIAGNOSIS: Computerized Tomography, Tomographu, Angiography, Nuclear Medicine and Ultrasound, New York City, November 2-4, 1979. Fee $150. Category 1 Approved 17 hours. Contact: Guy D. Potter, M.D., director, Dept. of Radiology, Lenox Hill Hospital, 100 East 77th Street, New York, N.Y. 11021, U.S.A. Telephone: (212) 794-4305.

IV INTERNATIONAL CONGRESS- Golden Jubilee of the Academia de Estomatologia del Peru. Third Spanish-Latin American Dental Congress, Lima, Peru. November 14-17, 1979. Contact: Dr. Antonio Pinillo Soteros. Chota 760-Lima, Peru.

30TH ANNUAL SCIENTIFIC CONGRESS of the Korean Dental Association. Guaruja. Brazil, November 25-December 2, 1979. Contact: Rua Humaita 389, Cx. Postal 2523, C.E.P., 01321 — Sao Paulo, Brazil.

SOCIETY OF ORAL PHYSIOLOGY AND OCCLUSION, New York, N.Y., U.S.A., November 26, 1979. Contact: Mr. Irving Anderman, 3 Linden Pl., Middletown, NY 10020, U.S.A.

2ND WORLD CONGRESS ON PAIN AND ANXIETY CONTROL IN DENTISTRY, New Delhi. India. November 27-29. 1979. Contact: Dr. P. Virapin, 15 avenue de Maurin, 3400 Montpellier, France.

1980

CANADIAN DENTAL ASSOCIATION, 1980 National Convention, Halifax, Nova Scotia, July 13-16, 1980. Contact: Dr. T.D. Ingham, Nova Scotia Dental Association, P.O. Box 604, Halifax, N.S. B3J 2R7.

FIRST INTERNATIONAL DENTAL CONFERENCE, Bombay, India, January 20-24, 1980. Contact: G.B. Shankwalker, Government Dental College and Hospital, Bombay 400001. India or Jangoo D. Kapadia, Sunkersett Mansion, Nan's Chowk, Bombay 400 007, India.

AUSTRALIAN DENTAL ASSOCIATION CONVENTION, Hobart, Australia, February 16-21, 1980. Contact: H. Hammer, 130 New Town Rd., New Town, Tas 7008, Australia.

EIGHTH AUSTRALIAN ORTHODONTIC CONGRESS, Perth, Australia. March 23-29, 1980. Contact: Hon. Secretary, Australian Society of Orthodontists, 179 St. George's Tce. Perth, W.A. 6000, Australia.

SCHWEIZERISCHE ZAHNÄRZTE-GESELLSCHAFT (SSO), Interlaken, Switzerland, May, 1980. Contact: Franz Plattner, Chefredaktor des Bulletins, Ottoplatz 21, 7000 Chur, Switzerland.

BRITISH DENTAL ASSOCIATION CENTENARY MEETING, London, England, July 10-11, 1980. Contact: R.B. Allen, secretary, British Dental Association, 64 Wimpole Street, London W1M 8A1, England.

NEW ZEALAND DENTAL ASSOCIATION JUBILEE CONFERENCE 1905-1980, Dunedin, New Zealand, August 25-29, 1980. Contact: The Conference Secretary, P.O. Box 647, Dunedin, New Zealand.

FÉDÉRATION DENTAIRE INTERNATIONALE, International Dental Show. Hamburg, Germany. August 25-September 7, 1980. Contact: M. Jean-Pierre Schweizer, sales manager. Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 309, Toronto, Ont., Can., M5H 1L9.

FÉDÉRATION DENTAIRE INTERNATIONALE, 68th Annual World Dental Congress, Hamburg, Germany, September 2-7, 1980. Contact: Dr. R. Braun, Bundesverband der Deutschen Zahnärzte, Universita-isstrasse 73, 5000 Koln 41, Germany.

THIRD NATIONAL CONVENTION AND III INTERNATIONAL CONFERENCE OF ORAL HEALTH, Lima, Peru, October 1-4, 1980. Contact: Dr. Gilberto Dominguez, Av. Benavides 264-902, Lima 18, Peru, South America.

1981 —

Fédération Dentaire Internationale, **69TH ANNUAL WORLD DENTAL CONGRESS,** Rio de Janeiro, Brazil, September 5-9, 1981.

Fédération Dentaire Internationale. **70TH ANNUAL WORLD DENTAL CONGRESS,** Vienna, Austria, October 11-16, 1982.

Fédération Dentaire Internationale, **71ST ANNUAL WORLD DENTAL CONGRESS,** Tokyo, Japan, October 1983.

Fédération Dentaire Internationale, **72ND ANNUAL WORLD DENTAL CONGRESS,** Helsinki, Finland, August/September, 1984.

Announcements are placed free of charge in the Journal of the Canadian Dental Association. Send Announcements to: CDA Journal, 1815 Alta Vista Drive, Ottawa, Ont., Canada K1G 3Y2. Only written notices are accepted for publication.

MARKETPLACE

OFFICES AND PRACTICES

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BRITISH COLUMBIA — Nelson. Family practice for sale. Single operatory, lab., waiting room, private office (650 sq. ft.). Good modern equipment, 4 years old. Suitable for dentist seeking moderate work pace. Contact: Dr. T.A. Myles, 577 Baker Street, Nelson, B.C. V1L 4J1. Telephone: (604) 352-5149 home.

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QUEBEC — Dorval. Excellent opportunity to have year round home and dental office in one spot. Dental office luxuriously furnished with 8½ year-old equipment in ten room custom built stucco bungalow with heated swimming pool. Reason: retirement. Contact: Dr. Rémi Décary, 245 Lakeshore Drive, Dorval, P.Q. H9S 2A3. Phone: (514) 631-6416 afternoons or evenings.

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BRITISH COLUMBIA — North Vancouver. Opportunity for full time associate in pleasant family practice. May purchase or lease if desired. Reply to CDA Box Number 1914.

BRITISH COLUMBIA — Fort Nelson. Associate wanted to practise in busy office in Fort Nelson, mile 300 Alaska Highway. Large patient volume ensures excellent remuneration. For further information contact: Dr. A.F. LeBounty or Dr. D.E.A. Black in Kelowna, B.C. Phone: (604) 860-8900 or 860-3322.

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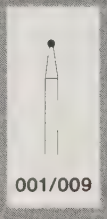

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OPPORTUNITIES AVAILABLE

BRITISH COLUMBIA — Cassiar. Locum or associate wanted for six weeks, three months, or longer. Spectacular scenery; excellent hunting; fishing, etc. Apply to: Dr. B. Rauch, c/o Medical Dental Clinic, Cassiar, B.C. V0C 1E0.

BRITISH COLUMBIA— Central Interior. Associate with view to partnership. Rapidly expanding area recently depleted of three dentists. Practice long established in modern medical-dental building. Hospital privileges available. Stable economy and great recreational opportunities. What more can you want if you wish to practise out of the cities. Contact: Dr. P. Collard, Box 1322, Vanderhoof, B.C. V0J 3A0, phone: (604) 567-2656.

BRITISH COLUMBIA — Vancouver. University of British Columbia — Hospital Dentistry. Full-time position as Head, Department of Dentistry, U.B.C. Health Sciences Centre Hospital. Responsibilities include planning, developing, administering, coordinating and participating in the functions of hospital dentistry at the U.B.C. Health Sciences Centre Hospital and within the Faculty of Dentistry. Dental degree from an accredited dental school, hospital dental training and eligibility for registration in the Province of British Columbia required. Submit curriculum vitae by September 1, 1979 to: Dr. B.H. Goldstein, Chairman, Search Committee, University of British Columbia, Faculty of Dentistry, Vancouver, B.C. V6T 1W5.

BRITISH COLUMBIA — Vancouver: The University of British Columbia — Faculty of Dentistry. Applications are invited for a full-time position in Oral Pathology in the University of British Columbia. Candidates should have had postgraduate training in Oral Pathology and be eligible to sit for either the Canadian N.D.E.B. or the American Board Examinations. Salary and rank negotiable, according to qualifications and experience. The appointment is aimed to coincide with the opening of a University Campus Hospital, and the successful candidate will be expected to participate in the Oral Pathology biopsy service and the hospital dentistry programme which will be provided within this facility. Applications should be sent to: Dr. J.D. Spouge, Professor and Head, Department of Oral Medicine, Faculty of Dentistry, University of British Columbia, 2199 Wesbrook Mall, Macdonald Building, Vancouver, B.C. V6T 1W5.

BRITISH COLUMBIA — Victoria. Dental Hygienist required for the Capital Regional District Community Health Service. Salary: $1,272. — $1,532. per month. Duties include oral examinations of pre-school, kindergarten and elementary school children; parent and pupil counselling on dental health; classroom education such as talks, demonstrations and 'brush-ins'. Applicants must possess a recognized diploma in dental hygiene and be eligible to practise in British Columbia. Must possess a valid driver's licence. The successful applicant will be eligible to a wide range of employee benefits as provided for in the Union Agreement. Duties will commence in September 1979. Applications will be received by the: Employment Officer, Capital Regional District, P.O. Drawer 1000, Victoria, B.C. V8W 2S6.

BRITISH COLUMBIA — Victoria. Dental hygienist urgently required for a busy practice. He or she must be licensed to practise in the province of British Columbia. Please send resume to: Dr. Frank Van Gyn, 1121 Yates St., Victoria, B.C. V8V 3N1.

ALBERTA — Calgary. Excellent opportunity for an ambitious, quality conscious prevention-oriented dentist, to join attractive practice. Association or permanent arrangement may be considered. Available immediately. Contact: Dr. Dade, phone: (403) 266-1422 or 288-6125.

MANITOBA — Winnipeg. Oral Surgeon certified to practise in Manitoba,

required for a busy practice. Object partnership. Please submit qualifications and curriculum vitae, and recent photo to CDA Box Number 1892.

ONTARIO — Toronto. Faculty of Dentistry, University of Toronto. Applications are invited for a tenure stream position in the Department of Community Dentistry. Departmental responsibilities include undergraduate and specialty related programmes in dental public health and research related to this discipline. Preference will be given to candidates who have a Canadian dental degree or the equivalent, a specialist qualification in dental public health and graduate training plus research experience in a public health related discipline. Rank and salary will be commensurate with qualifications and experience. Applications, together with curriculum vitae and two letters of reference should be sent by September 30, 1979 to: Dr. A.M. Hunt, Faculty of Dentistry, 124 Edward St., Toronto, Ont. M5G 1G6.

ONTARIO — Toronto. Paedodontist required for busy Paedodontic practice in north Metropolitan Toronto. Opportunities available for partnership. Position available immediately. Applicant must be certified to practise in Ontario. Reply in strict confidence to CDA Box Number 1912.

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas of Northern Ontario. An incentive grant of $18,000, payable over four years, or a guaranteed net professional income of $28,000 per annum is offered. A number of salaried positions are available on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 15 Overlea Blvd., Toronto, Ont. M4H 1A9. Telephone: (416) 965-5036.

ONTARIO — Endodontist needed. Fully equipped office, ready to go. No cash outlay necessary. Reply in confidence to CDA Box Number 1920.

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ONTARIO — Ottawa. The Ottawa Civic Hospital invites applications for the position of Chief of Dentistry. This is a 930 bed teaching hospital of the University of Ottawa Medical School and is a busy referral hospital with many tertiary level programs. This is a hospital based full-time position. Candidates should have completed a hospital internship and qualifications such as Certification in Oral Pathology would be desirable. The position will become available around January 1, 1980 and the closing date for applications is September 30, 1979. Applications and enquiries should be addressed to: Dr. Finlay McKerracher, Medical Director, Ottawa Civic Hospital, 1053 Carling Avenue, Ottawa, Ont. K1Y 4E9. Phone: (613) 725-4203.

ONTARIO — Windsor. Associate with, or share overhead costs, with two other dentists in an established modern high volume general practice in downtown Windsor. Dental-Eze Truth System, second room available when necessary. Full-time hygienist and dental technician. Contact: Dr. A. Lampe or Dr. P. Duronio, 550 Pelissier Street, Windsor, Ont. N9A 4L1. Phone: (519) 255-1117.

QUEBEC — Anjou. Dentiste demandé, temps partiel pratique réservée aux enfants. Répondez à: Dr. Pierre Boisclair, Centre Dentaire Anjou, Ste. 229, 8001 Boul. Les Galeries D'Anjou, Anjou, P.Q. H1M 1W9. Téléphone: (514) 353-6220.

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This competition is open to both male and female applicants.

DUTIES:

The successful applicant will be responsible for providing complete professional dental care within a fixed or mobile provincial clinic.

QUALIFICATIONS:

Graduation from a school of dentistry approved by the Canadian Dental Association and possession of a license to practice dentistry in New Brunswick as issued by the New Brunswick Dental Society. Competence in English is essential: however, competence in both official languages is desirable.

LOCATION:

Department of Dental Health Services, Dalhousie and Moncton.

Competition Number NB 79-PJ-142

Apply:

NEW BRUNSWICK CIVIL SERVICE COMMISSION

Room G-15, Centennial Building
P.O. Box 6000
Fredericton, New Brunswick E3B 5H1

NOVA SCOTIA — Halifax. The North End Community Clinic requires a dentist, to provide a broad range of dental services to patients. Duties: To provide treatment to patients at the North End Community Clinic; to work with other staff and various resources in the community to provide dental health education; to work as a member of the dental health and general health care team. Other features: This is an established, active practice with a preventive focus. The position is a full-time, permanent position. However, candidates wishing to practice part time will be considered and are encouraged to apply. The North End Community Clinic is a community health centre offering medical, dental, health education, and counselling services. The clinic is sponsored by the North End Community Health Association and the Halifax Infirmary Hospital. Requirements: A legally qualified dental practitioner, fully qualified and licensed to practise dentistry in the province of Nova Scotia; the interest and ability to work in a community health centre setting with active community involvement. Salary negotiable. Starting date: As soon as possible. Send application and resume to: the coordinator, North End Community Clinic, 2165 Gottingen Street, Halifax, N.S.

OPPORTUNITIES WANTED

BRITISH COLUMBIA — Dentist wishes to purchase records of retiring dentist in Vancouver area. Please Reply to CDA Box Number 1916.

GENERAL DENTIST — experienced, competent in all phases of general dentistry, desires part time associate position in P-A or Saskatoon region. Reply to CDA Box Number 1917.

EDUCATIONAL COURSES

CALIFORNIA — Applications are being accepted for advanced training in craniofacial biology, endodontics, pedodontics, periodontics, prosthodontics, oral pathology, oral and maxillofacial surgery and orthodontics. Each clinical specialty program is ADA accredited, leads to a certificate of study, and prepare the student for board examinations. There is also a general practice residency program which provides a certificate of completion. These programs are of 24 months duration with the exception of oral pathology and oral surgery (3 years each) and general practice residency (1 year). Each program begins July 1. Complete applications and records are due November 1, except for general practice residency, oral pathology and prosthodontics which are due December 31. The hospital residency programs (i.e. general practice residency, pedodontics, oral pathology and oral surgery) provide monthly stipends. The Graduate Program in craniofacial biology includes M.S. and Ph.D. training as well as Postdoctoral Fellowship training. Craniofacial biology is concerned with the evolution, growth and diversification, structure and function of oral-facial-cranial tissues related to the etiology, pathogenesis and mechanisms of numerous diseases and malformations. Tuition and monthly stipend awards are provided through a National Research Service Training Program from the National Institutes of Health. For additional information please contact: The University of Southern California School of Dentistry, Office of Dental Admissions — Advanced Programs, P. O. Box 77951, Los Angeles, CA 90007, U.S.A.

Exhibitors' Booths & Numbers

Liste des exposants et numéros de kiosques

1-2	Kiosques d'information
3	American Dental Manufacturing Co.
4	Cooper Laboratories Limited
5	Professional Pharmaceutical Corporation
6-7	A-dec, Inc.
8	Lux & Zwingenberger Ltd.
9	Medi-Dent Service, Division of Citicorp Leasing Canada Ltd.
10	Norwich-Eaton
11	Rx-Jeneric Gold Company
12	Banque de Montréal
13	Charles A. Kench & Associés Limitée
14-15	Warner-Lambert Canada Ltd. (Trident/Listermint) (Efferdent)
16-17	Warner-Lambert Company (Modular Denture Division)
18	Uniform World
19	Amadent — American Medical and Dental Corporation
20	Inter-Dent/International Dental Supply Co. of Canada
21	Cadco Dental Products
22	Medigaz Québec Ltée.
23	Modular Custom Cabinets
24	Hu-Friedy Manufacturing Co. Inc.
25	Teledyne Water Pik Ltd.
26	Astra Chemicals Ltd.
27	Safeguard Business Systems Limited
28-29-30	Denco, Division of McGaw Supply
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35	Lever Detergents Limited
36	Ando Laboratories Limited
37	Tri Hawk International
38	Frank W. Horner Limited
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43-44	Ash Temple Limited
45	Coe Laboratories Inc.
46	Shaw Laboratories
47	Inter-Unitek Canada Limited
48	Amalgamated Dental Canada Limited
49	Ellman Dental Manufacturing Co. Inc.
50	The Hygienic Corporation
52	John O. Butler Company
53	Medical Dental Stationers Ltd.
54-55	Takara Company Canada Limited
56	Medidenta Dental Supply Corporation
61-62-63	The Pelton & Crane Company
64-65	Siemens Electric Limited
70-71	Dépôt Dentaire (Canada) Limitée
72-73	Mardan Business Systems Limited
74	Rocky Mountain/Orthodontics Canada Ltd.
79	Lactona Corporation
80	Shofu Dental Corporation
81	Fraser Harlake
82	J.F. Jelenko & Company
83	Wm. Wrigley Jr. Company Limited
89	S.S. White Dental Division, Pennwalt of Canada Ltd.
90	Chayes Virginia, Inc.
91	La Société Gilles Morin Inc.
92	Versa-Dent Inc.
93	Professional Manufacturing Corporation
94-95	Novocol Chemical Manufacturing Co. Canada Limited
96	Cook-White Laboratories/Greene Dental Products
97-98	Procter & Gamble Company of Canada Limited
99-100	Sybron/Ritter Canada
101	Sybron/Kerr Canada
102	Hoyt Laboratories
103-104	Les Systèmes Cortex Ltée.
105	3M Canada Inc.
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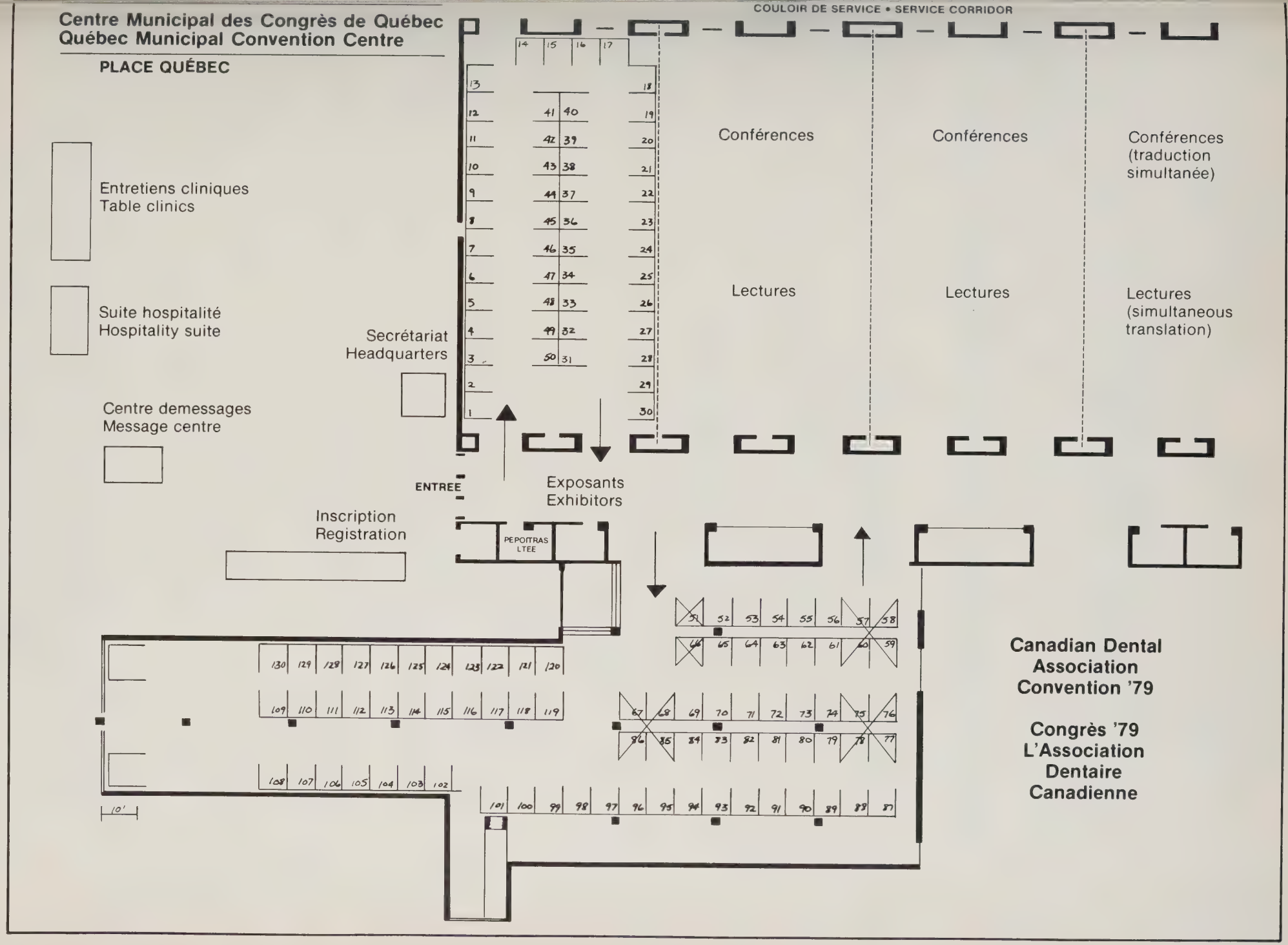
112	W.B.Saunders Company Canada Limited
113	Laboratoire BMG Inc.
114	Dent-Art Limited
115	Unident Limited (Ltée.)
116	Unident Ltd. and Sherwood Industries of Portland, Oregon
117-118-119	Dentsply International Inc.
120-121	L.D. Caulk Company of Canada
122	William S. Merrel Company
123-124	Compagnie Dentaire America Inc.
125-126	Midwest American
127	C.M.L. Leasing
128	Demetron Research Corporation
129-130	The Group at Cox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CANADIAN DENTAL ASSOCIATION

NATIONAL CONVENTION

CONGRÈS NATIONAL

DE L'ASSOCIATION DENTAIRE CANADIENNE

Québec, P.Q., 9-12 sept. 1979

REGISTRATION FORM

PLEASE PRINT OR TYPE

Name .....

Address .....

.....

Dentist
Hygienist
Assistant
Technician

ADDITIONAL REGISTRATION: (Required for participation to one or more activities of the convention)

....

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REGISTRATION FEES

DENTISTS:

— CDA Members and foreign dentists: $125. before or $150. after Aug. 1st, 1979 ..... $_____

— Canadian, Non-CDA Members : $150. before or $175. after Aug. 1st, 1979 ..... $_____

Registration entitles to attend:
— Scientific activities
— Luncheons on Monday, Tuesday and Wednesday
— Evening socials on Sunday and Tuesday
— Exhibitors Hall

AUXILIARIES: Hygienists, assistants and technicians $10. per person ..... $_____

Registration entitles to attend:
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— Exhibitors Hall

Tickets will be sold for social activities and luncheons

SPOUSE: (other than dentists and auxiliaries) $10. per person ..... $_____

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Monday, September 10, 1979 — $35. per person

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— Fashion show ☐
— Wine and cheese tasting ☐
— Boat tour on St. Lawrence River ☐

Total $_____

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Mail to: 1575 St. Louis Road, Sillery, Quebec G1S 1G4

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FORMULE D'INSCRIPTION

S.V.P. ÉCRIRE EN LETTRES MOULÉES

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Hygiéniste ☐
Assistant(e) ☐
Technicien(ne) ☐

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FRAIS D'INSCRIPTION

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— Canadiens, non membres de l'ADC: $150. avant ou $170. après le 1er août 1979 ..... $_____

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— aux déjeuners du lundi, mardi, mercredi
— aux soirées du dimanche et du mardi
— aux salles d'exposition

XILIAIRES: hygiénistes, assistant(e)s et technicien(ne)s $10. par personne..... $_____

L'inscription permet l'accès: — aux activités scientifiques
— aux salles d'exposition

Des billets seront vendus pour les activités sociales et les déjeuners

IJOINTS: (autres que dentistes ou auxiliaires) $10. par personne..... $_____

L'inscription permet l'accès: — aux activités scientifiques
— aux salles d'exposition

Des billets seront vendus pour les activités sociales et les déjeuners

BAL DU PRÉSIDENT
Lundi le 10 septembre 1979 — $35. par personne

$_____

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ACTIVITÉS POSSIBLES POUR LESQUELLES DES BILLETS SERONT VENDUS LORS DU CONGRÈS

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— Démonstration culinaire ☐
— Défilé de mode ☐
— Dégustation de vins et fromages ☐
— Excursion en bateau sur le fleuve St-Laurent ☐

Total $_____

L'inscription AVANT LE 1er AOÛT 1979 rend éligible au tirage d'un voyage au 67e congrès dentaire mondial (FDI) à Paris du 20 au 26 octobre 1979.

ANNULATION: Seulement ceux qui annuleront avant le 1er août 1979 seront remboursés.
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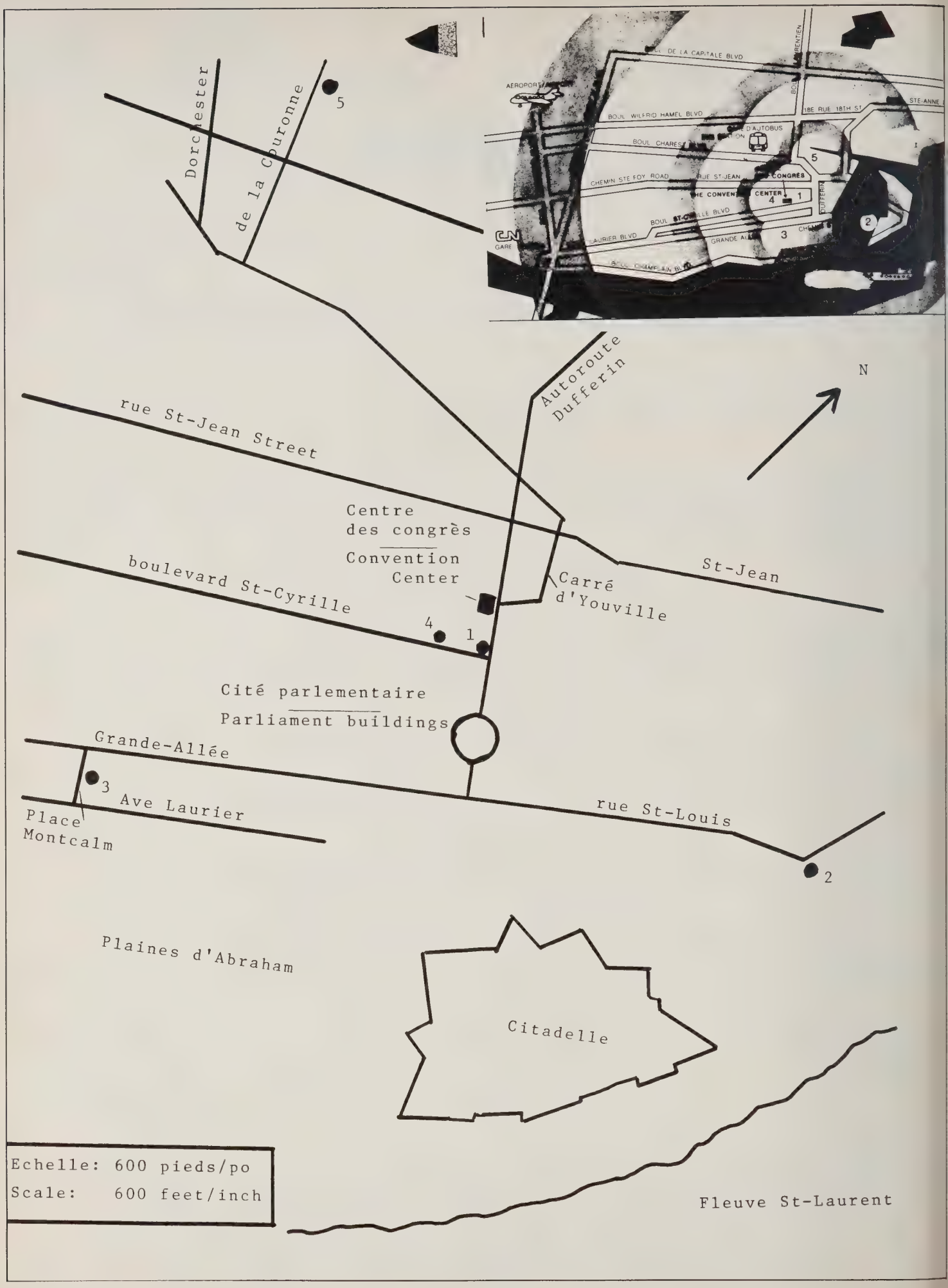
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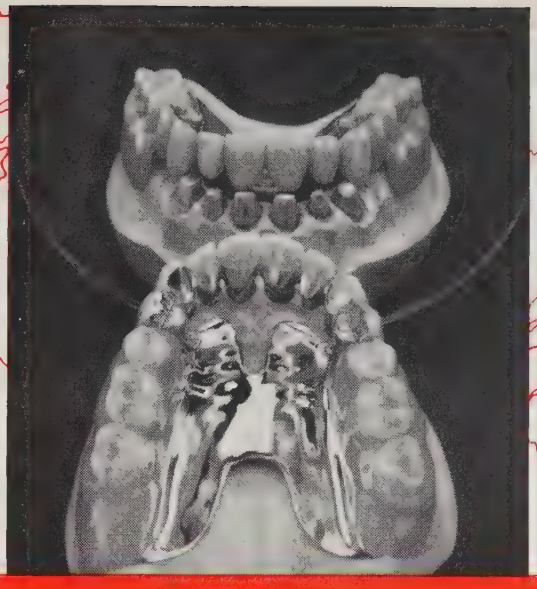

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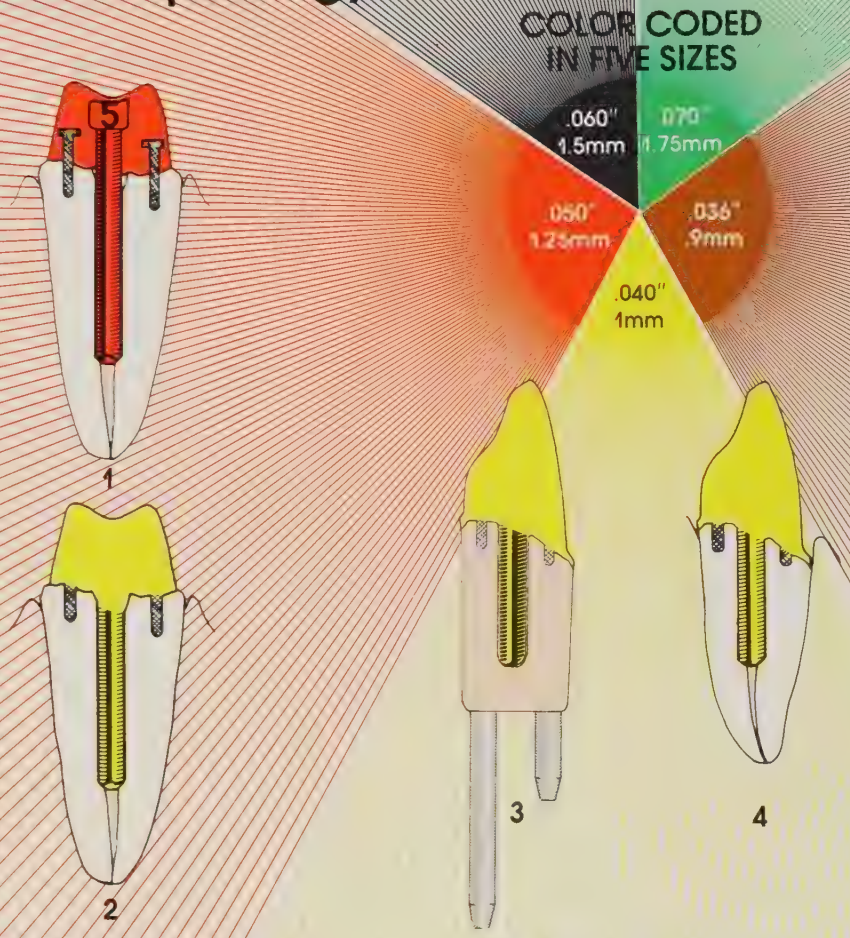

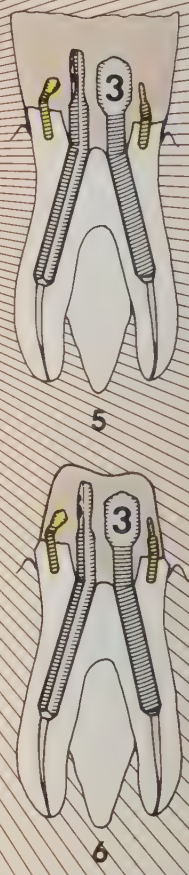

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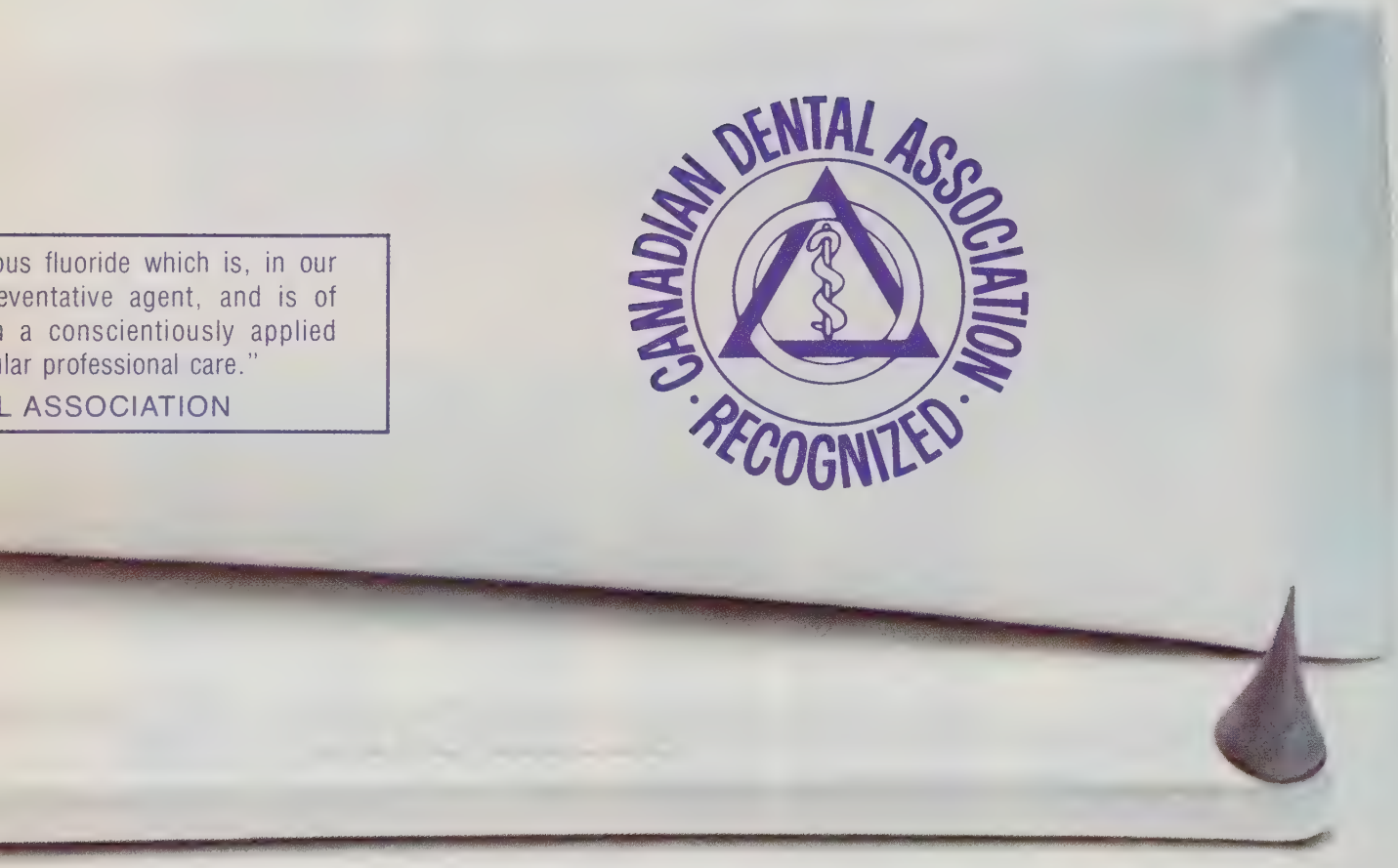

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September, 1979 Septembre, 1979

Canadian Dental Association

JOURNAL

de l'Association Dentaire Canadienne

vol. 45, no. 9

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COVER

This month's cover photograph was taken by Dr. Lawrence S. Burton of Montreal, Quebec. The view is of Lac Ouimet, St. Jovite, Quebec.

September, 1979 Septembre, 1979

Canadian Dental Association JOURNAL de l'Association Dentaire Canadienne

vol. 45, no. 9

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455 **Une réduction des primes d'assurance**
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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

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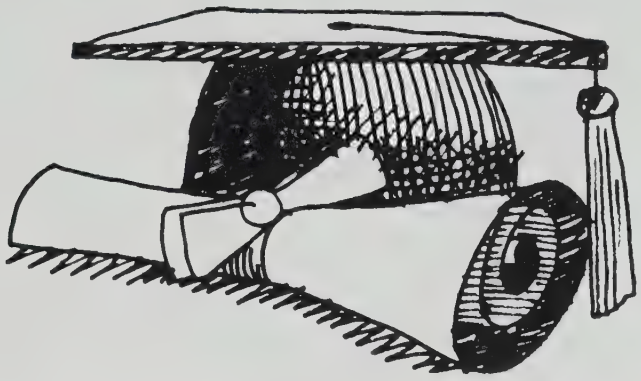

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National Council of Women in Canada

Pro fluoridation stand altered in 133-118 vote

On June 12 at their Annual Meeting in Halifax, Nova Scotia, the National Council of Women in Canada withdrew their longstanding support of water fluoridation in Canada.

The emotionally-charged meeting reversed the group's pro-fluoridation stand by a slim margin of 15 votes (133-118). The motion passed states that local Councils across the country may continue to 'study' fluoridation but national approval has been rescinded.

The National Council of Women in Canada is not the first group in the world to change its position on the fluoride subject — and it probably won't be the last. Claims that fluoridation causes cancer, birth defects and heart problems have systematically been refuted but the "no" vote quarter still wields a strong influence in every municipality where the subject of fluoridated water systems is debated.

Since the city of Brantford, Ontario fluoridated its water system in June, 1945, more than 600 other Canadian communities have followed suit.

The undisputable result has been a dramatic difference in the rate of tooth decay in people who drink fluoridated water and those who don't. In 1978, the Department of National Health and Welfare stated "the maintenance of the fluoride level of potable water at approximately 1 mg/L is the most efficient procedure to decrease the incidence of dental caries, and such a level of fluoride poses no risk to the health of Canadians."

The Canadian Dental Association supports fluoridation of water noting "detailed medical investigations and research studies show that people who use optimally fluoridated water throughout their lives have no greater susceptibility to cancer, kidney disorders, hardening of the arteries, heart disease, arthritis, rheumatism bone fractures . . . etc. than do those living in low-fluoride communities."

Public Health Associations have endorsed fluoridation and since 1954 the Canadian Medical Association has approved its use.

Still, the anti fluoridationists are a powerful lobby. When it comes to their health, there are people who feel nothing should be added to the 'natural' environment. 'Nature cannot be improved upon.'

The issue of fluoride pollution from industrial emissions is one the anti fluoridationists refuse to separate from the beneficial use of fluorides in water.

Recent circumstances on Cornwall Island in Ontario have fuelled the flames of the anti fluoridationist fires. News photographs of dead cattle speak loudly to an otherwise uninformed public. The subject of fluoride is an either/or situation. It's either good or it's bad. The task of fluoridation supporters and scientific researchers is to convince voters to consider the facts. The facts of fluoridation are available. The problem is, in the wrong hands, scientific conclusions have been twisted. Too much of anything — some vitamins and iron, for example — is bad for the human system but fluoridated water doesn't come close to exposing people to the levels of fluoride it would take to do them damage.

Pro fluoridationists have an upward battle — but statistics favor fluoridation as a preventive measure in dental health. It's a battle worth fighting. Hopefully the National Council of Women in Canada will reverse their most recent vote at their 1980 Annual meeting and once again support fluoridation.

Elizabeth McKee

ÉDITORIAL

Le Conseil national des femmes canadiennes

Le groupe a modifié son attitude à la fluoration

Lors de son congrès annuel, à Halifax (Nouvelle-Écosse), le 12 juin, le Conseil national des femmes canadiennes a retiré l'appui qu'il accordait depuis longtemps à la fluoration de l'eau potable au Canada.

Il y a avait de l'électricité dans l'air lors du vote qui a changé la position du groupe à l'égard de la fluoration, par une faible marge de 15 voix (133 contre 118). La motion adoptée précise que les conseils locaux pourront continuer "d'étudier" la fluoration, mais que l'appui national a été retiré.

Le Conseil national des femmes canadiennes n'est pas le premier groupe à modifier son attitude quant à la fluoration, et ce n'est probablement pas le dernier. Les hypothèses voulant que la fluoration entraîne le cancer, des anomalies congénitales, et des troubles cardiaques ont été systématiquement réfutées, mais les adversaires de la fluoration exercent encore beaucoup d'influence dans les municipalités où l'on débat la question.

La première ville à traiter son eau potable au fluorure a été celle de Brantford, en Ontario, qui a mis en oeuvre cette mesure en juin 1945. Plus de 600 autres municipalités canadiennes ont ensuite fait de même.

Le résultat indiscutable a été une réduction remarquable de la fréquence des caries dentaires chez les gens qui boivent de l'eau traitée au fluorure. Le ministère de la Santé nationale et du Bien-être social déclarait d'ailleurs, en 1978, que "l'addition d'environ 1 mg de fluorure par litre d'eau potable constitue la meilleure façon de réduire la fréquence de carie dentaire et cette teneur en fluorure ne pose aucun risque pour la santé des Canadiens."

L'Association Dentaire Canadienne se prononce en faveur de la fluoration de l'eau. Elle fait remarquer que des études et des recherches médicales poussées révèlent que les gens qui ont bu toute leur vie de l'eau traitée au fluorure de la façon prescrite n'ont manifesté aucune susceptibilité accrue au cancer, aux troubles des reins, au durcissement des artères, aux maladies du coeur, à l'arthrite, au rhumatisme, aux fractures des os, etc., que ceux qui ont vécu dans des municipalités où l'eau potable contenait peu ou pas de fluorure.

Les associations de santé publique appuient la fluoration et l'Association médicale canadienne en a sanctionné l'utilisation depuis 1954.

Pourtant, les adversaires de la fluoration constituent encore un puissant groupe de pression. Quand il est question de leur santé, nombre de gens estiment que l'on ne devrait rien ajouter à leur environnement "naturel", affirmant qu'on ne peut améliorer l'état naturel des choses.

Le fluorure apparaît toutefois à l'état naturel dans l'environnement. Pour leur part, les adversaires de la fluoration refusent de faire la distinction entre la pollution causée par des dégagements industriels de fluorure et l'utilisation de cet élément dans l'eau potable.

Le cas de Cornwall, où la réserve indienne est victime de la pollution venant des émanations de fluorure d'une industrie voisine, apporte de l'eau au moulin des groupes s'opposant à la fluoration. Il est facile d'impressionner le public peu informé en affichant des photos de bétail mort.

La fluoration est devenue une question sans nuance: on est pour ou contre. Le tâche des partisans de cette mesure et des chercheurs scientifiques est de convaincre les électeurs de se pencher sur les nuances, d'examiner la question sous tous ses angles. Les conclusions scientifiques ont été faussement interprétées par ceux qui ont intérêt à le faire. Un abus de quoi que ce soit, de certaines vitamines et de fer par exemple, est nocif pour l'organisme humain, mais la teneur en fluorure dans l'eau potable traitée par ce produit est loin d'approcher les niveaux où l'organisme pourrait en souffrir.

Les partisans de la fluoration ont une dure lutte à livrer, mais les statistiques prouvent que la fluoration est une bonne mesure de prévention de la carie dentaire. La lutte en vaut la peine. Il est à espérer que le Conseil national des femmes canadiennes renversera au congrès de 1980 la décision qu'il vient de prendre et qu'il accordera de nouveau son appui à la fluoration.

Elizabeth McKee

Trois grandes sociétés dentaires

Les trois grandes sociétés dentaires de Montréal, la Société Dentaire de Montréal (SDM), la Mount Royal Dental Society (MRDS) et le Montreal Dental Club (MDC) présenteront un programme scientifique conjoint.

À l'occasion de leur première réunion, le 18 septembre, les sujets abordés seront la radiologie, l'occlusion et la dentisterie légale. Les conférenciers seront le Dr Denis Forest, Marietta Albranti, le Dr Louis-Philippe Lemay et le Dr C.W. Herton-Greaven.

Le thème de la deuxième réunion (SDM seulement), qui se tiendra le 30 octobre, sera le "Droit du travail" (les alternatives souhaitables et possibles à la syndicalisation des bureaux de professionnels). Le conférencier sera Me Claude Dufresne, conseiller juridique de la SDM.

La troisième réunion (rencontre conjointe SDM, MRDS et MDC) sera d'une durée de trois jours, du 19 au 21 novembre, et comprendra les sujets "Pédodontie" et "Couronnes et ponts pour le praticien général."

Les sujets des quatre prochaines réunions de 1980 seront "La Gestion", "La Chirurgie" et "Les Matériaux dentaires et techniques opératoires." La dernière réunion sera l'Assemblée Générale de la Société Dentaire de Montréal.

More on mercury contamination

A timely reminder about mercury hygiene appeared in the July issue, and we must thank Dr. Barolet and his Council for their work, However, I feel we must emphasize very strongly the need for concern about this occupational hazard to ourselves and our associates.

I have a table showing 13 surveys of dental offices in North America. It is not five per cent that exceed the Threshold Level Value of 0.05 mgms Hg per m^3 — rather in excess of 40-50 per cent. In many of the surveys the instruments used were inadequate and even the best available today cannot provide accurate readings over 7-8 hours of mercury content; as well we do not know how much is absorbed through the skin. The safe level suggested in recent literature is a monthly average exposure to 1 microgram/m^3 of mercury — a level 50 times lower than the above TLV.

From my survey of surveys, I would estimate that nearly 100% of offices at sometime during the day exceed 0.01 mgm Hg/m^3 (or 10 microgram/m^3). Our experience in measurement of vapour in Vancouver offices would bear this out. Thus the problem is real, but is not insoluble. Prevention is our keyword in Dentistry, and should also be in our concern for occupational health.

Our final cautions are (1) masks should be worn at all times to prevent inhalation of mercury-rich aerosols. (2) we should treat amalgam scrap with the same caution as we treat mercury, (3) no assistant should handle silver amalgam without gloves on, (4) all amalgam preparations should be carried out within a negative pressure amalgam box. The blueprints for this latter appear in the Journal of the Academy of Dentistry, (25:53, September-October 1977) and shortly in the Journal of Canadian Dental Nurses and Assistant's Association.

Dr. R.H. Roydhouse,
professor,
Faculty of Dentistry,
University of British Columbia,
Vancouver, B.C.

CDA Journal heads west

I was recently shown a copy of your publication by a dentist friend of mine. I thought your magazine to be a quality publication with a good balance of news briefs, research stories and updates on dental politics in Canada.

While trying to rectify the lack of coverage I give to dental affairs, it now occurs to me that I don't subscribe to a single dental publication.

To this end, I would appreciate your beginning a subscription and billing me.

I would be grateful as well, if you could put my name on the mailing list for any CDA news releases.

Thanks in advance for your cooperation.

Laurence Wall,
medical reporter,
The Winnipeg Tribune

The Journal of the Canadian Dental Association is pleased to make this space available for "Letters to the Editor". All letters must be signed and the editor reserves the right to edit communications according to space requirements.

Le Journal de l'Association Dentaire Canadienne est heureux d'offrir cet espace aux lecteurs désireux d'envoyer des "Lettres à la rédaction". Toutes les lettres doivent être signées et la rédactrice en chef se réserve le droit de les raccourcir si le manque d'espace l'impose.

IN THE NEWS

"Dentistry and the Law" — two-day forensic science meeting

Dr. Robert Dorion is president of the Canadian Society of Forensic Science and the first dentist to hold that title in the organization's 26-year history.

One of Dr. Dorion's goals since his election has been to involve the dental profession in the Forensic Sciences. A two-day symposium, "Dentistry and the Law: Civil Litigation" is the result.

The program, featuring speakers from the United States and Canada, will deal with the legal implications of the practice of dentistry, problems that are obscure for many dentists.

The symposium includes discussions about the recognition of child abuse, malpractice and negligence, the evaluation of oral injuries for compensation purposes, dental fraud, third party payment and many other topics with possible legal implications.

"Dentistry and the Law: Civil Litigation" will take place at the Ritz-Carlton Hotel in Montreal October 15 and 16 from 9 a.m. to 5 p.m. Simultaneous translation is a feature and participants may register for either one day or the full program. Full symposium registration is $70 before October 1 and $75 after that date. Daily registration is $50 before October 1 and $55 after the first of the month.

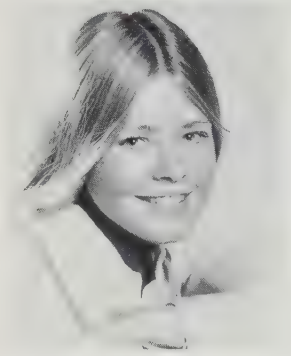
Register with Dr. Robert Dorion, suite 710-D, Sun Life Building, Montreal, Quebec, H3B 2V6.

Britain celebrates 100 years of dentistry

One hundred years of dentistry in Britain will be celebrated in July, 1980. The Centenary Celebrations are scheduled for July 10 and 11. Scientific sessions will cover several areas of dentistry including "The Prevention of Oral Disease", "Provision of Oral Health Care" and "Advances in the Treatment of Oral Disease".

Other activities will be highlighted by an exhibition of original art by dental surgeons and a centenary collection of historical dental health education material.

For further information contact Mr. R.B. Allen, secretary, British Dental Association, 64 Wimpole Street, London W1M 8AL, England.



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Recent metabolic studies have further indicated the safety of perorally administered xylitol at the present dosage levels. Comprehensive blood and urinary analyses on human subjects thus revealed no untoward side effects. *Abstract of paper by Dr. A. Scheinin, Canadian Dental Association, September 1979.*

**Acta Odontologica Scandinavica, Vol. 33, Supp. 70, 1975.*

For more information, write: **Xylitol,**
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lew of main clinic area of newly opened building at University of Saskatchewan.

7 million clinic facility classed "first rate" by Dean

A new Dental Clinic Building at e University of Saskatchewan eans that school's College of entistry can accommodate 25 stu-nts in each year of its five-year ogram, compared to 11 previously.

Erected at a cost of $7 million, the ucture was occupied in Decem-r of last year and officially open-during the Canadian Faculties Dentistry meeting this summer. r. Ernest Ambrose, dean of the llege chaired the opening cere-onies. He described the new facil-as "first rate."

Guests for the ribbon cutting cere-ony included the Lieutenant Gov-nor of the Province of Saskatche-an, Irwin McIntosh; Dr. Lawrence arder, president of the College of Dental Surgeons of Saskatchewan; the Honorable Herman Rolfes, recently appointed provincial Minister of Health; Dr. Doug Chaytor, president of the Association of Canadian Faculties of Dentistry; Dave Jones, president of the Student Dental Society; Dr. Begg, president of the University of Saskatchewan; Peter Prebble, MLA for Saskatoon-Sutherland; Mrs. Pastershank, chairperson elect of the Board of Governors of the University of Saskatchewan; Dr. Leo Kristjanson, vice president of Planning; Dr. Jack Paynter, first dean of the College; the architect of the building and a representative of the contracting company.

With 55,000 square feet of floor space, the heart of the building is the main dental clinic on the second floor which contains 64 dental chairs and associated equipment in individual cubicles arranged in bays of six or eight. The second floor also includes service laboratories for technical work and a private area for patient instruction in oral health.

The third floor, essentially a large balcony, is reserved for graduate work and continuing education, seminar rooms, study carrels and a small student lounge area. Technical laboratories for restorative and prosthetic dentistry are also located on the third floor.

A play area is located on the first floor which also houses the reception and waiting room. There is space set aside for patient screening and diagnosis, oral surgery and anaesthesia on the ground level.

IN THE NEWS

McGill clinic for handicapped

Over 1,200 normal and handicapped children were treated at the dental clinic sponsored annually by the Faculty of Dentistry at McGill University and Montreal General Hospital. Open each summer, this year's clinic was directed by Dr. Howard Katz. Dental operators were third year students from McGill working under the supervision of the University's dental staff.

Funds for the clinic were provided by the Quebec Ministry of Social Affars.

This past summer, emphasis was placed on encouraging good oral hygiene habits, but restorative and surgical procedures were also performed, according to Dr. Katz.

Survey Policy Committee

The last meeting of the Committee on Survey Policy was held recently at CDA headquarters in Ottawa. Due to the restructuring of the Council on Education, the work of the Committee will now be conducted by two newly-formed standing committees of the Council. Members present at the meeting were: left to right, Dr. Vic Chatwin, Dr. George Peacock, Dr. Doug Yeo, Thora Appelt, secretary, Dr. Don Proctor, Dr. Jim McLean, Kate MacDonald, director of the School of Dental Hygiene, Dalhousie University, Dr. Don Gratton, Dr. Kenneth Bentley, Dr. Gilbert Utas, Dr. Roger Coulombe, and Elaine Wesley, executive director, CDNAA.

From the Faculties . . .

McGill . . . Dr. Melvyn Weinstock became a fellow of the Royal College of Dentists (Canada) this month at the Canadian Dental Association Convention . . . Dr. Gerry Weinlander has been appointed associate dean, Undergraduate Studies for the Faculty of Dentistry . . . Dr. Trevor Chin-Quee is now a full-time staff member in the Division of Periodontics and Dr. D. Christopher Clark has been appointed to the full-time staff in the Division of Preventive Dentistry.

University of British Columbia . . . Dr. Malcolm Williamson has been appointed assistant dean of the Faculty of Dentistry. An associate professor in the Department of Public and Community Health and director of the Continuing Dental Education program, Dr. Williamson is chairman of the ad hoc Committee on Continuing Education of the Canadian Dental Association . . . Dr. Donald Brunette has been appointed associate professor in the Department of Oral Biology. Dr. Brunette is a cell biologist who has worked in the Medical Research Council group in periodontal physiology at the University of Toronto.

University of Saskatchewan . . . A $7 million dental clinic was officially opened recently. The opening ceremonies were hosted by Dr. Ernest Ambrose, dean of the College of Dentistry. See page 445.

University of Alberta . . . Dr. John Hardie, associate professor of Oral Pathology in the Department of Oral Biology, has been awarded the Canadian Dental Research Foundation Award. Dr. Hardie was on hand at the Canadian Dental Association Annual Convention in Quebec City this month to receive his award. Dr. Hardie received an engraved plaque and a cash award of $500 for his winning paper, "Scanning Electron Microscopy of the Dermal-Epidermal Interface in Chemical Carcinogenesis."

. . . The University Dental Museum has received the DDS degree certificate of John S. Lowther who graduated from Baltimore College of Dental Surgery in 1899, and the dentist's certificate to practise in the North West Territories dated 1903, before Alberta became a province in 1905. These documents were donated by David J. Shone who found them in a house where Dr. Lowther had lived.

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IN THE NEWS

Dr. Pierre Archambault
Quebec champion

Two-time Quebec Amateur Golf Champion, Pierre Archambault, is a dentist. His latest win took place last month in Hillsdale, Quebec in the 62nd Championship tournament. His first title came in 1972 when the Championship was held at his home course, Laval, where Dr. Archambault holds the record with a nine under par 63.

Thirty-five year old Dr. Archambault took this year's title with a four under par 212 for the 54-hole event.

When asked after the tournament where he gets his "cool", Dr. Archambault is quoted as saying "the trick is to keep your nervousness inside . . . I guess dentistry taught me that."

Insurance premiums reduced by CDSPI

A 10 per cent reduction in life insurance premiums for the Canadian Dentists' Insurance Program has been announced by Canadian Dental Service Plans Inc. (CDSPI).

All participants in the plan will also receive a 10 per cent increase in existing coverage, regardless of medical condition.

The premium reduction and increase in coverage will take effect January 1, 1980 and will apply to the amount of insurance in force at that time.

Spokesmen for CDSPI say the net effect of the two changes is that participants will have more coverage in 1980 but will pay lower premium rates than in the previous two years. The price reduction is possible because of low mortality rates and recent favorable investment performance of the insurance pool.

CDSPI adds that future premium rates could be affected by adverse changes in mortality or investment performance.

From the Societies . . .

Moncton Dental Society . . . Two Moncton dentists recently received plaques for outstanding service to the profession. Dr. Georges A. Gaudet was recognized for 35 years of service and Dr. Les Walker received a plaque for more than 36 years in dentistry.

The Canadian Dental Hygienists' Association . . . recently appointed executive of the Association include Diane Girardin, president, Manitoba; Margaret Bailey, president elect, Saskatchewan; Patricia Grant, first vice president, Nova Scotia; Rona Engler, secretary, Manitoba; Jackie Smorang, treasurer, Manitoba; and Carol Worobey, past president, Manitoba.

CDHA president, Diane Girardin right, accepts president's gavel.

Alberta Dental Association . . . Dr. Edward Allison was recently elected president of ADA. Other members of the Association Board include Dr. Donald Thompson, past president; Dr. R.C. McClelland, vice president; and Dr. P.F. Holt, Dr. B.W. Sigstad, Dr. P.J. Kirby, Dr. G. Travis, Dr. M. Wasylchuk, Dr. G.S. Foster and Dr. R.D. Kinniburgh, directors.

Royal Canadian Dental Corps Association . . . is on a membership campaign. All members of the Canadian dental profession who have been, or are, involved in dental services to the Canadian Forces are being asked to join the RCDC Association. Send a cheque for $5 to Major C.G. Hunt, president, Royal Canadian Dental Corps Association, 26 Southdale Drive, Markham, Ontario, L3P 1J7.

Ontario Dental Association . . . The new Ottawa-Carleton Social Services Dental Plan became effective in August, reported John Gillies, executive director of the ODA recently.

Toronto Academy of Dentistry Winter Clinic . . . November 22 at the Royal York Hotel. Contact Academy of Dentistry, 234 St. George Street, Toronto M5R 2P2.

Newfoundland Dental Association . . . The new Fee Guide went into effect at the beginning of July . . . Dr. Gordon Anthony and Dr. John King attended the CDSPI Meeting in June. Dr. Anthony is the representative for the Atlantic Provinces and Dr. King is Benefits chairman.

Manitoba Dental Association . . . will hold its annual meeting in Brandon, February 1 and 2, 1980.

Canadian Society of Public Health Dentists . . . Representatitives in the Services include Col Harry Protheroe, Winnipeg. LCol Hal Wood, Cornwallis, LCol Bernie Houde, St. Jean and LCol Peter McQueen, Halifax.

Restrictions on DAT

Testing legislation "compromising"

A recent report in the American Dental Association Leadership Bulletin said "proposed 'truth-in-testing' legislation now before Congress is unnecessary and would seriously compromise the quality of (the ADA) testing program . . ."

The state of New York recently adopted a bill requiring college entrance exams (including Dental Aptitude Tests, Law School Admissions Tests and Medical School Admission Tests) to be available for public scrutiny. Both the ADA and the Association of American Medical Colleges have announced this law impairs their ability to administer admissions tests that state.

The proposed 'truth-in-testing' legislation, introduced by Rep. Ted Weiss (D-N.Y.) resembles the New York bill. A second bill, introduced to Congress by Rep. Sam Gibbons (D-FL), according to the ADA Bulletin, "does not explicitly demand disclosure of the exams themselves, but orders prior notice of test material and full disclosure of test scores."

ADA supports "in principle" disclosure provisions in the two bills, but, according to Dr. James Graham, an assistant secretary of the ADA's Council on Dental Education and a consultant to the Canadian Dental Association Dental Aptitude Testing (DAT) Committee, ADA is concerned about "undue restrictions placed on its examination program that would jeopardize the quality of examinations."

A ruling forcing ADA to publish used test items would "cause examinations to become less reliable and less valid," said Dr. Graham. Publication would also deplete files of test items, of which there are limited numbers.

"The DAT is the only entrance examination program that contains tests that measure abilities other than academic," said Dr. Graham. "If the dental profession lost this instrument it would suffer irreparable harm, since this is the best proven criteria that can be used."

1980 Convention

The main convention site of the 1980 Canadian Dental Association convention scientific and clinical programs will be the Dalhousie University campus and Art Centre complex. Convention dates are July 13 to 16, 1980.

Co-chairmen of the event are Dr. John Christie, past president of the Nova Scotia Dental Association and Dr. Terry Ingham. Social activities will include an east coast lobster party and tours of the historical city of Halifax.

For further information write to the Nova Scotia Dental Association, P.O. Box 604, Halifax, Nova Scotia.

New Pamphlet

A new pamphlet — Eating properly for better dental health — is now available from CDA. This full-color, illustrated brochure can also be used as a poster. See page 485.

Dr. Moran at FDI

Dr. Rod Moran, past president of the Canadian Dental Association and Dr. Clyde Covit, Association president, will be the Canadian representatives at the FDI Congress next month. Dr. Moran is CDA national treasurer to the FDI. The meeting will take place from October 20 to 26.

Several of the scientific sessions at the 67th Annual Congress, have been devoted to children's dentistry in recognition of The Year of the Child.

A seminar on computers in dentistry features experts who will discuss the potential for the use of computers in practice management and in establishing clinical and laboratory treatment patterns. The application of computers in epidemiology and prevention and orthodontics will also be investigated.

FDI Commissions will also sponsor symposiums at next month's meeting. The Second Military Conference, chaired by Brig Gen William Thompson of Canada and M. Eiffrun of France, is one example. Topics to be discussed during this program include "The latest data on facial trauma"; "Collagenolytic action of bacteria isolated from carious dentine"; and "The medical branches of the Defence Services."

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on July 30, 1979:

Common Stock Fund	$43,309
Fixed Income Fund	$22,599
Guaranteed Fund	$16,092
Balanced Fund	$11,855

Total assets (market value) of the plan were $34,400,243.

The previous month's figures, as of June 30, 1979, stood as follows:

Common Stock Fund	$43,368
Fixed Income Fund	$22,708
Guaranteed Fund	$15,959
Balanced Fund	$12,087

Total assets (market value) of the plan were $34,648,567.

For further information write to: Canadian Dental Service Plans Inc., 234 St. George Street, Toronto, Ontario M5R 2P2.

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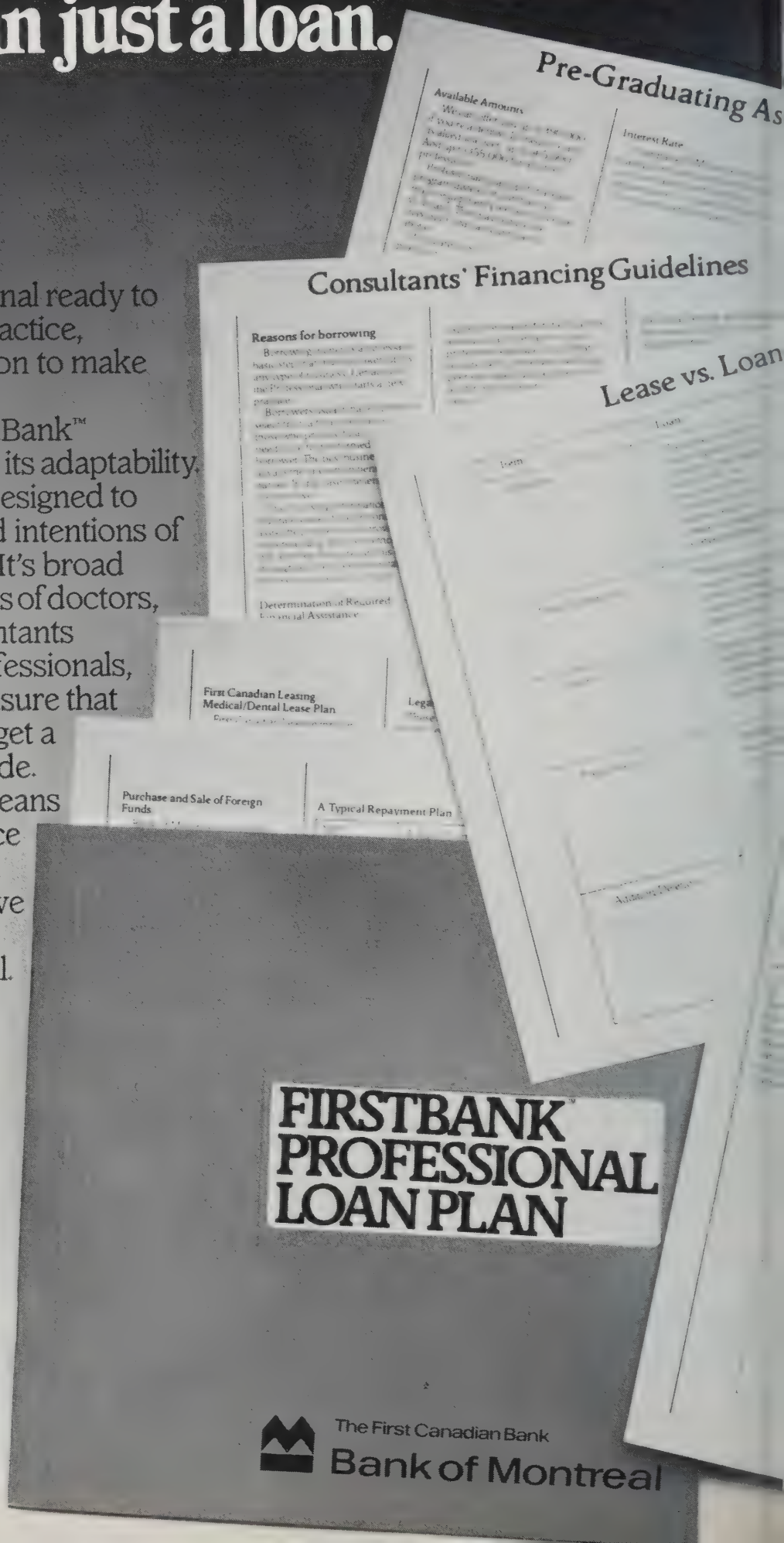


)ctober is CFDE month — fund raising campaign begins

Up to $2,200. has been allocated by e Canadian Fund for Dental Educa-on for a Personality Testing project nder the direction of Dr. Marcia oyd at the University of British olumbia.

Another grant of 2,500. for applied search at University of Western ntario to study dental radiation bar-ers has also been awarded this year.

Trustees of the Fund approved commendations for fellowships to-lling $47,500. in 1979.

None of this work would be pos-ble without the support of the nadian Fund for Dental Education and CFDE depends on dentists.

October is CFDE Month in Cana-. Personal gifts to the Fund de-eased by slightly more than $2,000. 1978 while there was a 26 per cent crease in contributions from busi-ss and industry compared to 1977.

This year's Fund Raising Campaign aimed at individual dentists across e country and a personal solicitation mpaign will be conducted in select-areas.

Closely affiliated with the Canadian ntal Association, CFDE is a regis-ed charitable organization. Money nated qualifies for attractive in-me tax and succession duty treat-nt.

Your contributions finance teach-g fellowships, research, teaching d students conferences and assist in eventive dentistry projects.

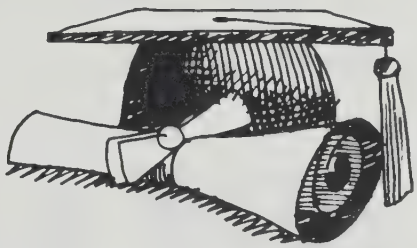
"The purpose of the Fund is to rein-ce the basic infrastructure of the ntal profession . . . there is no other ency to fulfill this vital role for the vate sector," said Dr. Harold llenbrand, executive director emer-s of the American Dental Associa-n and, until recently a CFDE stee.

'The number of dentists who are gular contributors, however, does t indicate the broad support the nd deserves from its principal bene-ficiaries," Dr. Hillenbrand continued. "Less than one third of active Canadian dentists contribute annually to the Fund."

Campaigning trustees, CFDE executive director, Murray McDonald and the Board's secretary, Indrid Kleysteuber hope that 1979 is the year to turn the statistics around and improve the rate of personal donations. The giving formula, according to Dr. Hillenbrand is to "decide on an amount to give, enlarge it to make a solid investment in the dental profession, its work and its future. Then, add a bit more to counter inflation."

October is CFDE Month — give generously.

Because you are... an Educated Person



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As an educated person, you share a special obligation to help preserve and extend this heritage for future generations

When you give to the Canadian Fund for Dental Education you help protect the standards and prestige of your profession by supporting CFDE's programs in behalf of dental education and dental care. If you haven't given yet to CFDE this year, please mail your tax-deductible contribution to:

Canadian Fund for Dental Education,
Suite 205, 44 Eglinton Avenue West,
Toronto, Ontario M4R 1A1

cfde

CANADIAN FUND FOR DENTAL EDUCATION

Your avenue for giving, to enhance the performance and prestige of Dentistry

IN THE NEWS

Toronto establishes Health Council steering committee

A six-member Metropolitan Toronto District Health Council Steering Committee to advise the Ontario Minister of Health, Dennis Timbrell, about a proposed district health council for the area, has been established. The Committee held its first meeting in July and is expected to submit its report in November.

The concept of a District Health Council for Metropolitan Toronto has been endorsed by Ministry of Health officials, the Hospital Council of Metropolitan Toronto, the University Teaching Hospitals Association and the Royal Commission on Metropolitan Toronto (Robarts Commission).

Chaired by John Wilson, a member of the Ontario Council of Health and a senior partner of Woods, Gordon and Co., the Committee will make recommendations on the size, composition and membership of the proposed council. Further planning responsibilities include timing, priorities and functions for the new council.

District health councils have been established in 21 areas of the province of Ontario.

Victoria's secret

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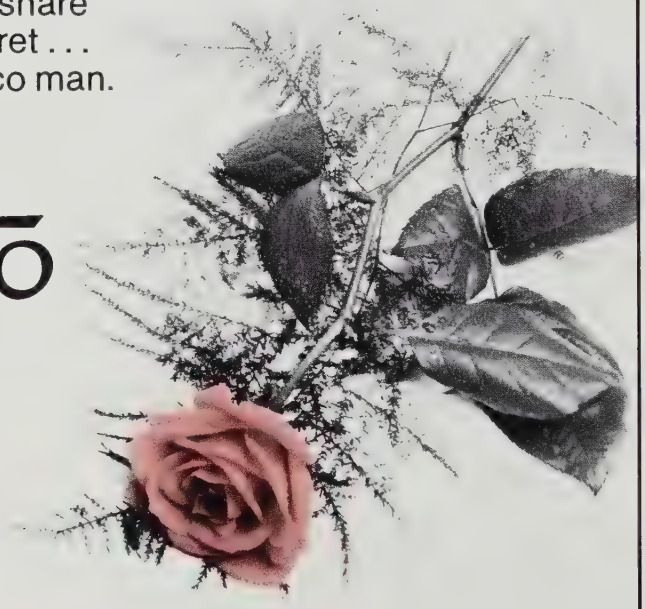


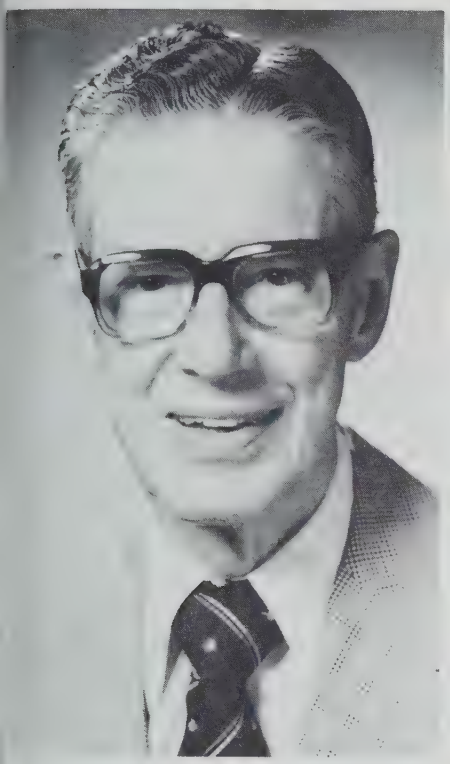
If you're a dedicated D.A., like Victoria . . . you can get a rose from your Denco man. Just ask him. Conscientious efforts should always be rewarded.

Rare books make a good investment

Dr. Mitchell Boniuk likes books — but he rarely reads them. The Toronto dentist has organized "First Editions Unlimited", a group of six fellow enthusiasts who collect books. They invest $100 each a month on first-edition texts. Over the last four years they have built up a collection of 30 volumes that Dr. Boniuk expects will be valued at up to $72,000 in 10 years.

Depending on who wrote it, a simple inscription "Merry Christmas Virginia" could be worth a lot of money on the rare book market. Dr. Boniuk is reported as saying in a recent article in the Financial Post that a first edition copy of Melville's "The Whale" ("Moby Dick") that sold for $53,000 would probably have fetched only $15,000 without an otherwise dull inscription signed by Melville himself.

Books purchased for investment are not meant to be read. Coffee stains, cracked spines, missing dust jackets all devalue an otherwise valuable text by as much as half. Typographical errors in first editions, on the other hand, can increase the worth of a text as mistakes are corrected in subsequent printings.



Mr. Lloyd Bowen, CDA fluoridation officer.

First non dentist

Lloyd Bowen is CDA Honorary Member

Lloyd Bowen, fluoridation officer with the Canadian Dental Association has been awarded an Honorary Membership in recognition of his 13 years' service to the dentistry profession in Canada. Mr. Bowen joined CDA in January, 1967. Previously he had been executive secretary of the Health League of Canada.

Born in Sherbrooke, Quebec, Mr. Bowen has lived and worked in many Canadian cities as a salesman and bookkeeper.

During World War II, Mr. Bowen was with the Governor General's Foot Guards. When he was overseas he was attached to the Black Watch of Montreal. After six years in the services, Mr. Bowen was discharged with the rank of Major. He is a Life Member in the Royal Canadian Military Institute.

A septuagenarian, Mr. Bowen is a fervent supporter of bilingualism. For years he has been studying conversational French and during the next academic term he will follow-up with two more courses.

Mr. Bowen lives in Toronto. His wife is Helen Dingle, a Winnipeg native who is a graduate of the University of Toronto. They have one daughter, Sally Bowen, a teacher in education at Algonquin College in Kingston, Ontario.

The Honorary Membership was presented to Mr. Bowen at the Canadian Dental Association Annual Convention this month in Quebec City. He is the first lay person to receive the honor.

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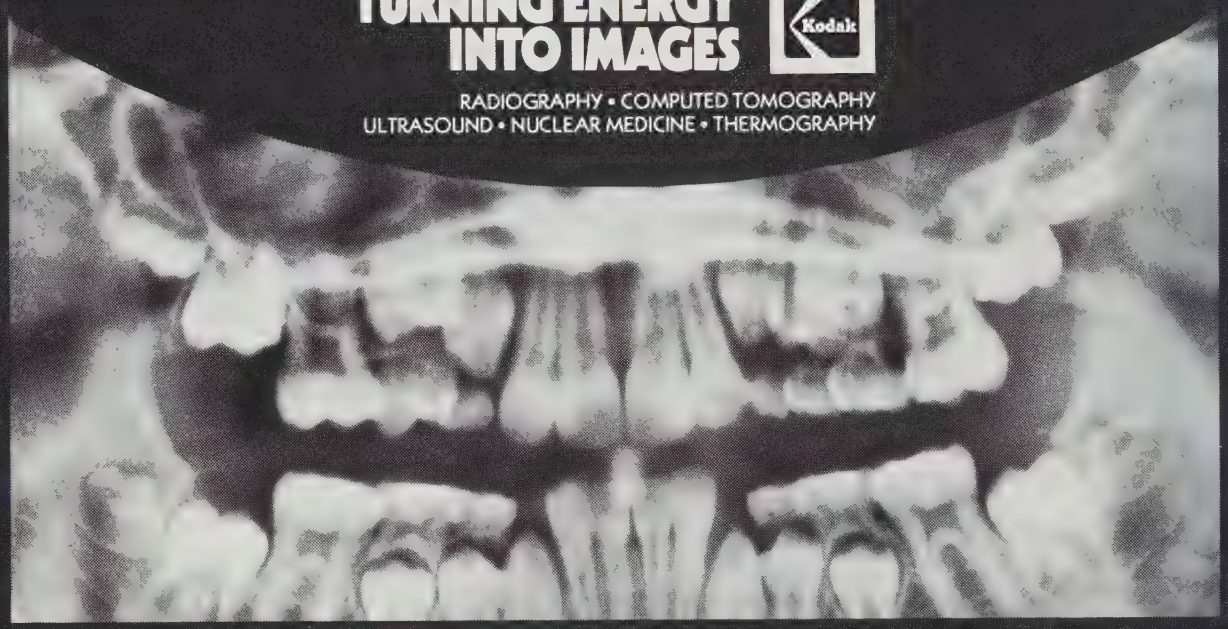

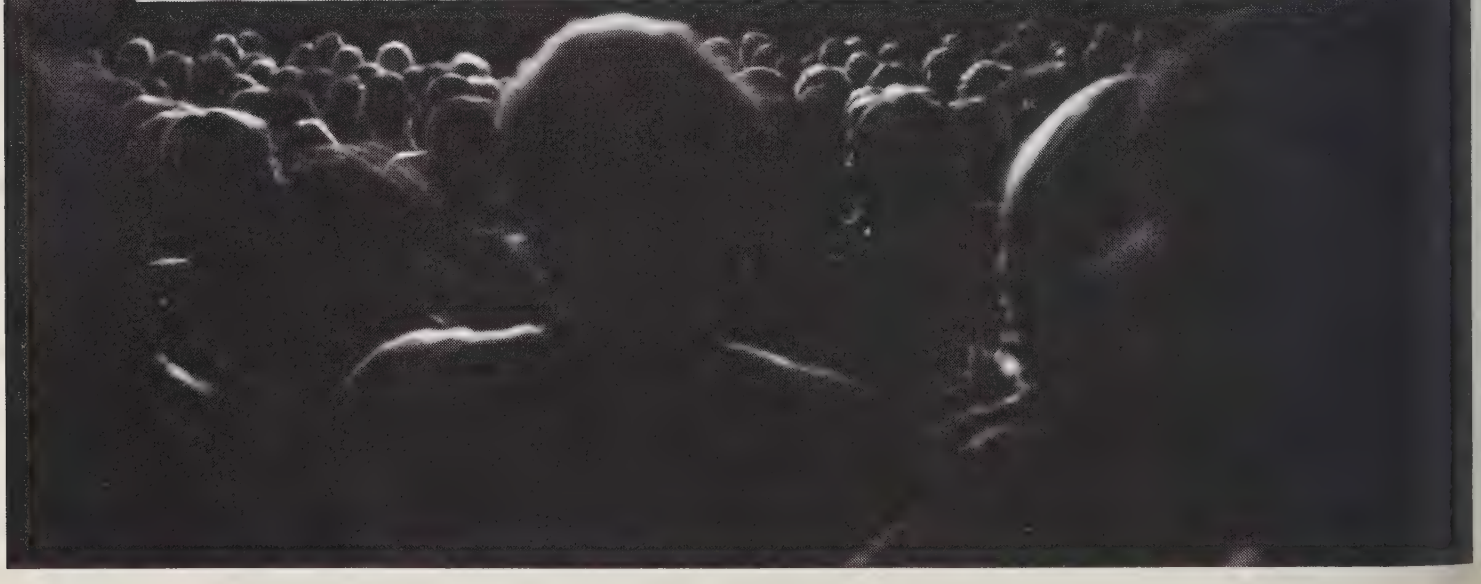

Sciences légales

Le Dr Robert Dorion, président le la Société canadienne des scien-es légales, est le premier dentiste à occuper ce poste depuis la fondation le cet organisme, il y a 26 ans.

L'un des objectifs du Dr Dorion, depuis son entrée en fonction, est e susciter la participation de la rofession dentaire dans le domaine es sciences légales. C'est grâce ses efforts qu'a été organisé un olloque de deux jours, "La méde-ine dentaire et la loi: litige civil", ui se tiendra les 15 et 16 octobre.

Le programme du colloque, au-uel seront invités des conférenciers anadiens et américains, portera ur les ramifications juridiques de pratique de la médecine dentaire, roblèmes peu connus d'un grand ombre de dentistes.

Le colloque donnera lieu à des ébats sur la façon de reconnaître s cas de brutalité dont sont vic-mes les enfants, les fautes profes-onnelles et la négligence, l'évalua-on des blessures buccales pour fins 'indemnisation, la fraude dans le omaine dentaire, le versement de aiements à une tierce partie et aints autres sujets pouvant avoir es ramifications légales.

"La médecine dentaire et la loi: ige civil" aura lieu à l'hôtel Ritz-arlton, de Montréal, de 9 h à 17 h s 15 et 16 octobre. Les participants néficieront de la traduction si-ultanée et peuvent s'inscrire pour programme au complet ou la urnée de leur choix. Les frais inscription pour le colloque sont \$70 avant le 1er octobre et de \$75 rès cette date. L'inscription pour e seule journée coûte \$50 avant le r octobre et \$55 à compter de cet-date.

Les intéressés sont priés de s'ins-ire auprès du Dr Robert Dorion, ite 710-D, édifice Sun Life, Mont-al, P.Q., H3B 2V6.

Une réduction des primes d'assurance

Une réduction de dix pour cent des primes d'assurance-vie du programme d'assurance des dentistes canadiens vient d'être annoncée par la Canadian Dental Service Plans Inc. (CDSPI).

Tous les participants souscrivant à ce régime verront également le montant de leur protection augmenter de dix pour cent, sans égard à leur état de santé.

La réduction des primes et la hausse de la protection entreront en vigueur le 1er janvier 1980 et s'appliqueront au montant d'assurances en vigueur à ce moment.

Selon les porte-parole de la CDSPI, le résultat net des deux changements sera d'accroître la protection en 1980 tout en ramenant les primes à un niveau inférieur à celui des deux années précédentes. La réduction des primes se révèle possible en raison des bas taux de mortalité et de la hausse récente des revenus d'investissements.

La CDSPI ajoute cependant que toute détérioration appréciable de ces facteurs favorables pourrait occasionner une révision des primes.

Une nouvelle brochure . . .

de l'ADC — La santé dentaire grâce à une bonne alimentation — voir à la page 485.

Une clinique pour 1,200 enfants handicapés

Plus de 1,200 enfants normaux et handicapés ont profité des soins de la clinique dentaire parrainée chaque année par la Faculté de dentisterie de l'Université McGill et par l'Hôpital Général de Montréal. La clinique est ouverte chaque été et se trouvait cette année sous la direction du Dr Howard Katz. Les soins dentaires étaient prodigués par des étudiants de troisième année de McGill, qui travaillaient sous la supervision du personnel dentaire de l'Université.

Les fonds nécessaires au fonctionnement de la clinique venaient du ministère des Affaires sociales du Québec.

Cet été, on insistait surtout sur l'acquisition de bonnes habitudes d'hygiène buccale, mais on exécutait également des interventions chirurgicales et des travaux de restoration, explique le Dr Katz.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 juillet 1979.

Fonds d'actions ordinaires	\$43, 309
Fonds à revenu fixe	\$22,599
Fonds garanti	\$16,092
Fonds de placement équilibré	*\$11,855*

L'avoir total (valeur marchande) du régime s'élevait à \$34,400,243.

Au 30 juin 1979, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	\$43,368
Fonds à revenu fixe	\$22,708
Fonds garanti	\$15,959
Fonds de placement équilibré	\$12,087

L'avoir total (valeur marchande) du régime s'élevait à \$34,648,567.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

LES ACTUALITÉS

Membre honoraire

M. Lloyd Bowen, préposé à la fluoration à l'Association Dentaire Canadienne, vient d'être reçu membre honoraire en reconnaissance de ses 13 années de service à la profession dentaire au Canada. M. Bowen s'est joint à l'ADC en janvier 1967. Il était auparavant secrétaire général de la Ligue de santé du Canada.

Natif de Sherbrooke, au Québec, M. Bowen a vécu et travaillé dans plusieurs villes canadiennes, en qualité de vendeur et de comptable.

Pendant la Deuxième Guerre mondiale, M. Bowen faisait partie de la garde du Gouverneur général. Muté outre-mer, il fut attaché au régiment Black Watch de Montréal. Il quitta les forces armées après six ans, avec le rang de major. Il est membre à vie de l'Institut militaire royal canadien.

M. Bowen n'est pas du genre à rester inactif. Il étudie le français depuis de nombreuses années et s'inscrira à deux autres cours pour l'année scolaire qui vient. À soixante-dix ans, c'est un farouche partisan du bilinguisme.

Il demeure maintenant à Toronto. Sa femme, Helen Dingle, est originaire de Winnipeg et diplômée de l'Université de Toronto. Ils ont fille, Sally, qui enseigne au département de l'éducation du collège Algonquin, à Kingston, en Ontario.

C'est à l'occasion du congrès annuel de l'Association Dentaire Canadienne, tenu ce mois-ci à Québec, que M. Bowen a été reçu membre honoraire. Il s'agissait de la deuxième fois seulement qu'une personne autre qu'un dentiste méritait cet honneur.

L'ADA et le loi sur l'honnêteté des tests

Selon un compte rendu publié récemment dans la revue Leadership de l'American Dental Association, le projet de loi sur "l'honnêteté des tests", sur lequel se penche le Congrès américain, est complètement superflu et mettrait sérieusement en péril le calibre du programme de tests de l'ADA.

L'État de New-York a adopté, il y a peu de temps, une loi exigeant que les examens d'admission au niveau collégial (y compris les tests d'aptitudes aux études dentaires, les tests d'admission aux écoles de droit et aux écoles de médecine) soient accessibles au public en cas de contestation. L'ADA et l'Association of American Medical Colleges ont affirmé que cette loi entravait l'administration des examens d'admission dans cet état.

Le projet de loi sur "l'honnêteté des tests", déposé par le représentant républicain Ted Weiss (D-N.Y.), est semblable à la loi déjà en vigueur dans l'État de New-York. En outre, d'après le bulletin de l'ADA, un autre projet de loi, soumis au Congrès par le représentant républicain Sam Gibbons (D-Fl) n'exige pas spécifiquement la divulgation des examens mêmes, mais ordonne un préavis de la nature des tests et la divulgation complète des résultats des tests.

L'ADA appuie en principe les dispositions relatives à la divulgation contenues dans les deux projets de loi, mais s'inquiète de l'imposition de restrictions abusives à son programme d'examen, restrictions préjudiciables à la qualité de ces examens. Telle est l'opinion du D James Graham, sécrétaire adjoint au Conseil d'éducation dentaire de l'ADA et conseiller auprès du comité de l'Association Dentaire Canadienne responsable du programme de tests d'aptitudes aux études dentaires.

Selon le Dr Graham, toute ordonnance exigeant que l'ADA rende publique la teneur de ses tests occasionnerait une diminution de la validité et de l'exactitude des examens, ainsi que des frais de publication inutiles.

"Le programme de tests d'aptitudes aux études dentaires est le seul programme d'examens d'admission qui mesure d'autres aptitudes en plus des résultats scolaires explique le Dr Graham. "La profession de dentiste subirait un préjudice irréparable si elle devait se passer de cet instrument, car c'est du meilleur critère éprouvé dont on puisse se servir."

En 1980

Le Congrès - à Halifax

C'est sur le campus de l'Université Dalhousie et au complexe du Centre des Arts que se dérouleront la majeure partie des activités relatives aux programmes scientifique et clinique du congrès de l'Association Dentaire Canadienne en 1980, plus précisément du 13 au 16 juillet.

Les co-présidents de l'événement seront le Dr John Christie, ancien président de l'Association Dentaire de Nouvelle-Écosse, et le Dr Terry Ingham. Au nombre des activités sociales prévues, mentionnons un pique-nique au homard et des visites des sites historiques de la ville de Halifax.

Pour plus de renseignements, prière de s'adresser à l'Association Dentaire de Nouvelle-Écosse, boîte postale 604, Halifax, Nouvelle-Écosse.

Octobre est le mois du FCED

Le Fonds canadien pour l'enseiement dentaire (FCED) a octroyé e subvention jusqu'à concurrence $2,200 au Dr Marcia Boyd, de Jniversité de la Colombie-Britanque, pour lui permettre de mener à n un projet d'étude sur des tests de rsonnalité. Pour sa part, l'Univerté Western Ontario bénéficiera cette née d'une subvention de $2,500 ur des recherches appliquées sur des ucliers contre les radiations en ntisterie.

Les administrateurs du fonds ont prouvé des recommandations pour ctroi de bourses de perfectionnent totalisant $47,500 en 1979.

Rien de cela ne serait possible ns le Fonds canadien pour l'edution dentare, qui à son tour ne urrait survivre sans l'appui des ntistes canadiens.

Octobre a été désigné le Mois du FCED au Canada. En 1978, les dons personnels au Fonds ont légèrement fléchi, soit d'environ $2,000, tandis que les contributions venant des entreprises commerciales et industrielles ont connu une hausse de 26 pour cent par rapport à 1977.

La campagne de souscription de cette année s'adresse à tous les dentistes canadiens à titre individuel. Dans certaines régions, on organisera une campagne de sollicitation personnelle.

Étroitement associée à l'Association Dentaire Canadienne, le FCED est un organisme de bienfaisance reconnu. Les dons sont donc admissibles à des déductions attrayantes pour fins d'impôt et de droits de succession.

Vos contributions permettent de financer des bourses d'enseignement, des subventions de recherche, l'éducation, des congrès d'étudiants et des projets de recherche sur la prévention dentaire.

"Le but du Fonds est de renforcer l'infrastructure fondamentale de la profession dentaire, car aucun autre organisme du secteur privé n'est en mesure d'assumer cette tâche cruciale," explique le Dr Harold Hillenbrand, directeur général honoraire de l'American Dental Association et fiduciaire du FCED jusqu'à récemment.

"Le Fonds mérite un appui plus vigoureux de la part des dentistes, car ce sont eux qui en sont les principaux bénéficiaires, poursuit le Dr Hillenbrand. Moins d'un tiers des dentistes canadiens actifs contribuent chaque année au Fonds."

Les administrateurs de la campagne, le directeur général du FCED, M. Murray McDonald, et la secrétaire du Conseil, Indrid Kleysteuber, espèrent que 1979 marquera un revirement de situation et une hausse des dons personnels. Une bonne façon de calculer ce don, selon le Dr Hillenbrand, est de déterminer une somme de base, d'y ajouter un surplus pour en faire un solide investissement dans la profession dentaire, son travail et son avenir, puis d'en mettre encore un peu pour contrebalancer l'inflation.

Octobre est le mois du FCED. Contribuez-y généreusement.

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Il faut de bon nerfs pour être dente . . . et pour gagner un tournoi golf. C'est du moins l'explication urnie par le Dr Pierre Archambult, deux fois champion golfeur nateur du Québec. Il vient en effet remporter la victoire au championt amateur du Québec pour la uxième fois, affichant un total de 2 coups, soit quatre sous la norale pour ce parcours de 54 trous. tournoi se tenait à Hillsdale, Québec, le mois dernier.

Sa première victoire remontait 1972, alors qu'il avait mérité le ampionnat sur le terrain de Laval, il joue régulièrement. Il avait rs réussi une ronde record de 63, it neuf coups sous la normale. Le ntiste de 35 ans a montré qu'il ait la main aussi sûre sur les verts e dans la bouche de ses patients.

Le centenaire

Le mois de juillet 1980 marquera le centenaire de la dentisterie en Grande-Bretagne. La célébration de ce centenaire se fera les 10 et 11 juillet. Des séances scientifiques engloberont plusieurs secteurs de la dentisterie, dont la prévention des maladies buccales, les mesures de santé buccale et les perfectionnements du traitement des maladies buccales.

Au nombre des autres manifestations prévues à cette occasion, mentionnons l'exposition d'oeuvres artistiques de chirurgiens dentaires et d'une collection de documentation d'éducation dentaire amassée au cours des cent dernières années.

Les intéressés sont priés de s'adresser à M. R.B. Allen, secrétaire de la British Dental Association, 64 Wimpole Street, London W1M 8A1, England.

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Small computers carry a big work load

y Liz McKee, editor,
ı consultation with David Langlois, Systems Manager,
lunter Douglas Canada Ltd., Pointe-Claire, Quebec

What measures three feet by six feet, looks after the usiness side of a dental practice and remembers the ames and addresses of all your patients?

If you said "a short, fat elephant with an MBA" you are rong.

The correct answer is "a computer." More particularly, self-contained data processing system tailored to handle ıe business administration demands of dentists, without ıe day-to-day expertise of a programmer.

Scarborough's Dr. Bruce Glazer is just one of a growing ımber of dentists moving into the computer field. Dr. lazer describes his three-month-old system as "fantas-c." He went out looking for a computer largely because s office was being overrun by insurance forms and billing ıperwork. The system was onstream just two months ter the day he made the decision to install it.

"The business side of dentistry isn't taught well enough dental school," said Dr. Glazer. Month-end statements ıat had taken more than a full day to complete are now ınning through the computer at the end of a working day, explained. Another convenience for the office is that the ɔmputer will divide the billings of each dentist in the two-an operation.

Efficiency was Dr. Glazer's prime motive for installing a ɔmputer system. His records are now kept up-to-date and s receptionist, Carol Stacey, spends much less time on ɔutine, but time-consuming office procedures.

Stacey didn't like the idea of a computer system at first. ıe admits she didn't understand what it was all about and as afraid of the equipment during the first week. After ır two-week training period, however, she began to alize just how much assistance she could get from the achine, relaxed around it and now finds her "work day is ore pleasant" because the tedious tasks, insurance forms particular, are left to the computer.

TYPICAL REACTION

Dr. Glazer's receptionist's initial reaction to the pros-ct of working with a computer is not unusual.

Time spent training office personnel, before the equip-ent actually arrives, is part of the investment, say the ɔmputer experts. As the dentist, it's 'your' computer, but the end, it can function only as well as the people em-ployed to run it and that, in turn, can depend a lot on the approach your office staff takes to innovation.

The advent of small office computers is inevitable according to the experts. Costs are moving to within reach of most professionals — physicians, lawyers and accountants as well as dentists. One firm's micro processor (the basic guts of a computer), for example, that cost in the neighborhood of $300 in 1974, now sells for $13.50. Orders of 500 or more will be filled at a rate of $8 per unit. In other words, the price has dropped 96 per cent in five years.

What the industry is telling professionals such as dentists is that it is not unrealistic financially or psychologically, to contemplate a move into the world of computers. Patient records, billings, insurance, accounts receivable and financial statements can all be entered into the computer for fast, efficient retrieval. Some computers are programmed in such a way that you can stop one function (such as processing financial statements), complete another function (perhaps making appointments) and return to the first as easy as one, two, three.

LEARN THE BUZZ WORDS

All of this spells good office management for the dentist whose practice demands increasingly more time be spent on administration and personnel. If you're interested in buying a computer, talk it over with the representative of a reliable company and take it from there. Talk to other dentists and discuss the move with your accountant if you need some reassurance from the financial point of view. Approach your staff and let them know how a computer can fit into the overall operation of the office. This will prevent any misconceptions about the relationship of the computer to the employees.

A good, self-contained computer system will cost from $12,000 to $200,000 depending on your specific requirements and the number of dentists wishing to use the same machine. The mystery of computers is largely based in the vocabulary. You need not be a programmer or EDP expert to run a small office computer any more than you should be a licenced mechanic before driving a car, but you should know where to get reliable information. Learn enough to be wise to the buzz words and hard sell tactics. Be told, not sold — until you're satisfied the system is what you want. No reliable firm will leave you out in the cold. A training course and on-going maintenance are usually part of the package.

Computer equipment is called "hardware." The programming capability is the "software." The most expensive equipment is worthless without appropriate software. Some of the basic computer units are designed to accept modular components so that additional software capabilities can be added, to a limit, as circumstances change.

The "CRT" (cathode ray tube) is the visual display unit. The operator 'talks' to the computer with an attached typewriter keyboard and the 'conversation' flashes on the screen. The CRT can handle both "input" from the operator and response from the computer ("output"). Invoices, appointment records or any other printed material that comes out of the computer is also considered "output."

One of the most important considerations in buying a computer is the storage capability of the system (that is, how many characters of information can be maintained for recall). Such information is generally stored on magnetic platters called disks. These can cost two to four times the price of the original machine. Dr. Glazer, for example, has a system with three disks which are copied at the end of every month for storage back-up and easy recovery in case of error.

The brain of the system is the "micro-computer." It enters, transfers and processes information with the help of the "CPU" (central processing unit), the "ROM" (read only memory) where basic programs are stored, and th "RAM" (random access memory) which remembers cur rent programs.

MAJOR INVESTMENT

Any way you look at it, the installation of a compute system in your office represents a major investment. How ever, the value of the computer depends on your specifi requirements and how you apply it. The efficiency rate o the system is related to the size of the practice.

Statistics indicate small business computers are the wa of the future. In 1978 there were 25,394 computers i Canada (excluding personal computers) and the predic tion is that by the end of 1980 that number will increase t 40,300.[1]

Although you don't need to be an expert to run a smal office computer installation, you do need to know wha you're buying. Purchase the expertise, then the compute — it should work for you, you don't work for it.

REFERENCES

1 **In-Depth Reports, Evans Research Corporation of Canada, Missis sauga, Ontario; vol. 8, no. 11, July, 1979.**

GLOSSARY OF COMPUTER TERMS

A

access, random: Pertaining to a storage device in which each set of data is directly addressable in any desired sequence regardless of the location of that data in storage.

accuracy: A measure of the degree to which errors are controlled or to the extent of conformity to specific design criteria for error detection and/or correction.

B

bit: A contraction or abbreviation of binary digit. A bit has come to be recognized as the smallest unit of information.

blank: A part, section or area of a data medium in which data is not entered or recorded.

burst, error: A series of consecutive errors in data transmission.

byte: A small group of adjacent binary bits usually operated on as a single unit. A byte generally contains eight bits representing either one alphanumeric character or two numerics.

C

cathode ray tube (CRT): A device which produces a visible display of electronic signals. Also referred to as a visual display unit.

central processing unit: The part of a computer system that controls the interpretation and execution of instructions. The central processing unit includes three basic components — the control unit, the arithmetic unit and the internal storage unit or main memory unit. Synonymous with CPU or main frame.

character: Elementary marks or events used in combination with others to represent data. Generally i computers, a character is represente by six bits which can be used t represent a maximum of 64 differen characters.

code: A system of symbols and rule used to convert data from one form o representation to another.

cps: An abbreviation for the tern cycles-per-second used in measurin frequencies. Synonymous with an now generally replaced by the tern hertz (Hz).

D

data: A representation to which mean ing might be assigned.

data base: A collection of one or mor logically related data sets or files.

debug: The process of correctin errors in computer software or hard ware.

Les ordinateurs et les dentistes

iz McKee,
édactrice en chef

ec l'aide technique de David Langlois, directeur des stèmes, Hunter Douglas Canada Ltd., Pointe-Claire, uébec

Qu'est-ce qui mesure trois pieds par six pieds, s'oc-ıpe des affaires d'un dentiste et se souvient du nom et l'adresse de tous ves patients?

Si vous avez répondu "un petit éléphant avec une maî-se en administration", vous vous êtes trompé.

C'est un ordinateur! Plus précisément, c'est un sys-me autonome de traitement des données, conçu pour der le dentiste à administrer les affaires de sa pratique ns les services constants d'un programmateur.

L'un des nombreux dentistes à recourir à l'ordinateur de Dr Bruce Glazer, de Scarborough. Il en fait l'expé-nce depuis trois mois et trouve le système absolu-nt fantastique. C'est l'avalanche de formulaires d'assurance et la paperasse relative à la facturation qui l'ont incité à se tourner vers l'ordinateur. Il n'a fallu que deux mois pour l'installation du système une fois que le Dr Glazer en a pris la décision.

"Lors de nos études en médecine dentaire, explique-t-il, nous n'en apprenons pas assez sur les questions financières relatives à une pratique." Grâce à l'ordinateur, des états financiers mensuels qui nécessitaient auparavant une journée de travail ardu sont maintenant préparés rapidement à la fin de chaque jour. Autre commodité, l'ordinateur sépare les factures lorsque deux dentistes partagent le même bureau.

Le recours à l'ordinateur est avant tout une question d'efficacité pour le Dr Glazer. Ses dossiers sont désormais tenus à jour et sa réceptionniste, Carol Stacey, a pu se libérer de la paperasse administrative qui demandait une si grande partie de son temps.

Au début, Carol Stacey n'était pas enchantée de la présence de l'ordinateur. Elle se posait toutes sortes de questions et éprouvait une certaine crainte à l'égard de

GLOSSARY
(continued)

cument: Any presentation of infor-ıtion which is readable by human ings usually in connection with formation of interest to the origi-tor of a data processing activity, or user, rather than to the operators the computer. (noun)

E

t: An input control technique used detect input data which are inac-ate, incomplete or unreasonable. is function can be performed either nually or by computer either ore or during regular processing.

F

me: Refers to the array of binary across the width of magnetic tape the series of punched holes repre-ting one character across the width of paper tape.

H

hard copy: Term used to refer to the permanent visible record of information printout on paper or forms.

I

information retrieval: A system or technique designed to recover and interpret stored data.

input: Data that is to be processed or the process, technique and device used to collect and transfer data to another device or system.

J

jitter: The short time instability of a signal amplitude or phase or both.

K

keyboard send-receive (KSR): Refers to typewriter-oriented terminals having a keyboard and page printer.

L

line: A communications channel.

loop: A sequence of instructions in a computer program which is repeated until some specific condition arises.

M

master file: A file of semi-permanent information which is used frequently for processing of data, or for more than one purpose, such as a master customer file which may be used for invoicing purposes, accounts receivable purposes, or for sales statistics.

minicomputer: A dedicated application computer used for applications such as front end processing or message switching in data communica-

→ **continued on next page**

cet appareil plutôt mystérieux. Après une période de formation de deux semaines, elle commença à se rendre compte des services que l'ordinateur lui rendrait, se débarrassa de ses inquiétudes et, maintenant, elle en trouve son travail plus plaisant, n'ayant plus à s'occuper de la tâche monotone que représentent les formulaires d'assurance.

RÉACTION TYPIQUE

La réaction initiale de la réceptionniste du Dr Glazer à l'égard de l'intrusion de l'ordinateur n'a rien d'inhabituel.

Selon les experts en traitement des données, l'investissement requis comprend la formation du personnel de bureau avant l'installation de l'équipement. Bien que le dentiste considère l'ordinateur comme "son" système, ce n'est pas lui qui se charge de son fonctionnement: l'attitude du personnel de bureau envers cette innovation est donc primordiale.

Les spécialistes estiment que l'entrée en fonction de petits ordinateurs de bureau est devenue inévitable. Les frais d'installation et de fonctionnement sont maintenant à la portée de la plupart des professionnels: médecins, avocats, comptables et, bien sûr, dentistes. Le micro-ordinateur (le coeur d'un système) fabriqué par une compagnie, par exemple, se vend maintenant $13.5(alors qu'il coûtait environ $300 en 1974. Le prix baiss à $8 l'unité pour les commandes de 500 et plus. E d'autres termes, le prix de ces appareils a baissé de 9(pour cent en cinq ans.

Le message de l'industrie de l'informatique aux pro fessionnels comme les dentistes est le suivant: il n'es ni financièrement ni psychologiquement irréalist d'envisager l'utilisation des ordinateurs au bureau L'ordinateur peut emmagasiner dans sa mémoire, à l portée du doigt, les dossiers des patients, les factures les formulaires d'assurance, les comptes à encaisser e les états financiers. Certains ordinateurs sont program més de telle façon que vous pouvez interrompre u travail, (le traitement des états financiers), en exécute un autre (fixer les rendez-vous), puis revenir à la tâch initiale.

L'apport de l'ordinateur permet donc au dentiste d perfectionner la gestion de ses affaires, facteur crucia quand une pratique grandit et exige de plus en plus d temps pour l'administration et les questions de person nel. Si l'achat d'un ordinateur vous intéresse, parlez en avec le représentant d'une firme de bonne réputation

GLOSSARY

tions applications, or as the central processing unit (control unit, arithmetic unit and internal storage or main memory) for small business computer.

N

node: In telecommunications, the node is that point of concentration in a transmission system where lines or trunks from many sources meet.

O

output: Generally refers to processed data.

P

packaged software: Standard programs which are purchased by the user or paid for on a royalty basis through a service bureau as an alternative to custom-developing programs through in-house programmers or an outside service.

R

rerun: Refers to the repeating of all or part of a program in the computer.

S

small business computer (SBC): A small stand-alone system designed around a general-purpose computer with the software necessary for processing standard business applications (payroll, accounts receivable, accounts payable, general ledger, order processing, inventory) and with the ability to handle mass storage devices (magnetic drum, disk, tape).

software: The programming aids and programs available for a computer. These include library routines, operating systems, assembly routines, utility routines, compilers and application programs, some of which are provided by the suppliers of the equipment while others may be developed by the user or purchased from "software houses".

T

time, access: Time interval between when data in storage is called for anc when it is delivered for processing o between when data is requested to b stored and when storage is completed.

time, response: The time required t react to any given input.

turnkey system: An integrated systen of computer hardware, operating sys tems, application programs and relat ed services and products purchased b the buyer in a complete package ready for operation.

U

unit record equipment: A recen term for electro-mechanical and elec tronic equipment used for processing punched cards.

This Glossary was compiled from a list of terms published by Evans Research Corporation, Mississauga Ontario, in a "Guide to Small Business Computing and Distributed Processing."

vec d'autres dentistes et avec votre comptable. N'hésitez pas à en discuter avec votre personnel pour leur xpliquer les maintes façons dont un ordinateur peut méliorer le fontionnement du bureau. Vous éviterez nsi que des craintes inutiles prennent naissance parmi ux.

Un bon système autonome coûtera de $12,000 à 200,000, selon vos exigences particulières et le nombre dentistes qui en partageront l'utilisation. Une grande artie du mystère entourant les ordinateurs vient du ocabulaire qu'on emploie à leur sujet. Il n'est pas plus écessaire d'être un programmateur ou un expert dans traitement électronique des données pour faire fonnner un petit ordinateur de bureau, qu'il ne faut être écanicien pour conduire une auto. Il suffit d'avoir ielques connaissances de base. Renseignez-vous suffimment pour ne pas vous laisser étourdir par le langage ystérieux des experts ou les tactiques de vente sous ession. Ne prenez pas de décision affirmative tant que us ne serez pas convaincu que le système correspond aiment à vos besoins. Une firme de bonne réputation vous laissera pas tomber: elle organisera un cours ur vos employés et s'occupera de l'entretien.

FAMILIARISEZ-VOUS AVEC LE LANGAGE

En langage d'informatique, on fait la distinction tre le matériel ("hardware") et le logiciel — ou les ogrammes ("software"). Le matériel le plus perfecnné ne sert pas à grand-chose sans l'apport de proammes bien adaptés. Certains des systèmes de base nt conçus de façon à ce qu'on puisse y ajouter des éments modulaires, ce qui permet de programmer rdinateur de façon plus poussée, au besoin, en deçà certaines limites.

La communication visuelle se fait au moyen d'un ran cathodique. L'opérateur "parle" avec l'ordinateur âce à un clavier de dactylo et la conversation apparaît médiatement sur l'écran. Ce dernier affiche tant l'int (c'est-à-dire les instructions de l'opérateur) que xtrant (la réponse de l'ordinateur). Font partie de tte dernière catégorie les factures, les registres des ndez-vous ou tout autre matériel imprimé produit par rdinateur.

L'un des facteurs les plus importants à considérer ns l'achat d'un ordinateur est sa capacité de stocke, c'est-à-dire le volume d'informations qu'il peut magasiner. Ces informations, ou données, sont bituellement inscrites sur des plateaux magnétiques pelés disquettes. Ces dernières peuvent coûter deux quatre fois plus que le prix du système original. Le Glazer, par exemple, dispose d'un système dont les is disquettes sont copiées à la fin de chaque mois de on à procurer une capacité auxiliaire de stockage et qu'on puisse y retracer les informations en cas d'erreur.

Le cerveau du système est le "micro-ordinateur". Ce dernier reçoit, transfère et traite l'information au moyen de l'unité centrale de traitement ("CPU" — central processing unit), de la mémoire "ROM" (read only memory), qui emmagasine les programmes fondamentaux, et de la mémoire des informations en transit (RAM — random access memory).

De quelque point de vue que ce soit, l'acquisition d'un ordinateur pour votre bureau représente un investissement de taille. Sa rentabilité dépend de vos besoins, et de l'envergure de votre pratique.

Selon les statistiques, les petits ordinateurs de bureau deviendront de plus en plus courants. En 1978, il y avait 25,394 ordinateurs en fonctionnement au Canada (sans compter les ordinateurs privés) et on prévoit que ce nombre atteindra 40,300 vers la fin de 1980.

Nul besoin d'être un expert pour recourir à un petit ordinateur de bureau. Il est toutefois à conseiller de bien se renseigner avant de s'en procurer un. Assurez-vous de vous procurer non seulement l'équipement, mais aussi les services des spécialistes voulus. De cette façon, votre ordinateur travaillera pour vous, et non vous pour lui.

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*April 28th to May 1st, 1974. Co-sponsored by Department of Pedodontics, University of Maryland and by the Division of Dentistry, U.S. Department o Health, Education and Welfare. For a complete report on proceedings, write to Medical Department, Warner-Lambert (Canada) Limited, 2200 Eglinto Ave. East, Scarborough, Ontario M1K 5C9.

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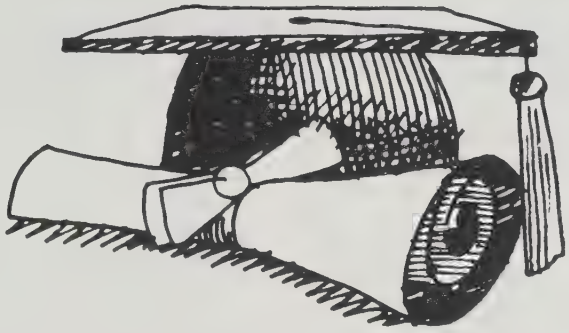

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COMPUTERIZED ORAL FLUORIDE PROGRAM

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The efficacy of optimum fluoride ingestion in prevention of the incidence of tooth decay is well documented and generally recognized throughout the world. A number of vehicles exist to facilitate ingestion, such as water fluoridation, fluoridated milk, fluoridated salt, fluoridated vitamins, fluoride drops, and fluoride tablets, to mention a few. Unfortunately some drawbacks exist with most or all of these methods. Fluoridation of communal water is the most common and popular. It is highly effective, safe, economical, and people acquire benefits without conscious effort. The only shortcoming of water fluoridation is that it is only economically feasible where there is a communal water supply, and it is considered by some to be mass medication and therefore an infringement on their civil rights and liberties. Fluoridated milk and salt have disadvantages in that dosage levels are difficult to regulate, depending on an individual penchant to milk or salt. Fluoridated vitamins are more expensive and could be wasteful and require prescriptions, as do drops and tablets.

The Sturgeon Health Unit in Alberta has devised a system for our unfluoridated rural areas involving fluoride supplementation with neutral NaF drops aided by computer to facilitate records and distribution. By using a computer and reducing as much as possible many of the obstacles and annoyances involved with the use of supplemental fluorides, we have encouraged increased utilization with good control, requiring minimum personnel and expense. Once a person is enrolled in the program, the only conscious effort required is the daily administration of the drops. As the fluoride supplement of choice, we selected neutral NaF in plastic drip bottles, with calibrated orifices capable of delivering uniform drops. This method allows for a greater range of dosage variations and the drops, which are essentially tasteless, can be added to food or drink without being obvious, or can be taken directly in cheek or tongue. The bottles each contain 30 ml solution of NaF = O.221 mg or 0.95 mg F ion and are calibrated so that each drop contains 0.125 mg fluoride ion. Therefore 8 drops equals 1 mg of fluoride ion. Each bottle contains, by calculation

Dear Parent:

Congratulations on the birth of your new baby. May we offer some suggestions on the care of your baby's teeth? As you are no doubt aware your baby's primary teeth are almost completely formed and the permanent teeth are in the process of forming.

Dental decay can be completely prevented by having properly formed teeth and maintaining good oral hygiene. Teeth can only be properly formed by having essential elements such as calcium and fluorine during their formative stages.

Calcium can be obtained from milk and food. Fluorine is obtained from the water. Unfortunately although fluorides are present in all water supplies, some waters do not have enough to meet the body's needs. The teeth are then not properly fluoridated and are much more susceptible to decay.

Your Dental Department at the Sturgeon Health Unit has available water sample bottles and facilities for testing the fluoride content of your water supply. Should your water be found to be deficient in fluoride we can prescribe and forward you fluoride drops or tablet supplements for your child, to be taken until the age of 12.

This service including fluoride supplements is provided to you free of charge through your municipal and provincial taxes. If you wish to contact us please do so at the above address.

Fig 1 Letter of introduction.

round figures and actual average count, approximate- 800 drops. The bottles are readily available (Fluor- ol-Adams Lab. Ltd., Vancouver) and reasonably iced at 35¢ per bottle. In our case, the bottles are pro- ded free of charge to the recipient by the Provincial overnment.

The first step involves finding and identifying poten- l benefactors for the program. Children from birth age 12 are included in the program but we generally not encourage starting a child over eight years of age the program because of the limited benefits — most of teeth are erupted. We concentrate most of our re- iting effort on children under one year of age, so that timum participation can result in optimum results.[1,2] We periodically place notices in the local newspapers create public awareness of the program, but most of r contacts come through the public health nurses, who very co-operative in informing parents of the fluoride gram and the potential benefits. Word of mouth m participants to friends and neighbours also pro- es another source of inquiries.

At the time of the initial contact, a letter of introduc- n is given or mailed to the interested individual (Fig. The parent or guardian fills out an Application for oride Supplement form. This is an indication of will- ness to participate in the program. The individual is given a water sample bottle and is asked to supply with a sample of the domestic water supply, so that can determine the fluoride content and what level, if , of fluoride supplementation will be indicated. Once water sample and other pertinent information, such names and ages, are obtained, the water is analyzed us using a colorimeter, or the sample is submitted to provincial analyst. Water samples are collected in r-ounce plastic bottles with ordinary screw-type s.

Information is transferred from the prescription form to the master computer uoride sheet. The master sheet is mailed to e computer centre where the information is key punched into the computer . . .

After the results of the water analysis are known, one of two form letters is sent out to the parent or guardian. If the level of fluoride in the existing water supply is considered adequate for this area, a letter is sent out advising the parent or guardian that fluoride supplementation is not considered necessary. Nevertheless, encouragement of good dental habits is reinforced (Fig. 2).

Dear

Your water sample has been analyzed for fluoride content and was found to contain part per million. One part per million fluoride is considered adequate for reduction of tooth decay, so fluoride supplements for your children are not necessary.

It is hoped however that you will encourage your children to develop other good dental health habits, such as proper and regular toothbrushing, regular dental visits, a balanced diet following Canada's food guide and minimizing the use of sweets.

If you have any questions on dental care, please feel free to contact the dental department of the Sturgeon Health Unit.

Yours sincerely,

Fig 2 Notification of adequate fluoride in domestic water supply.

One point two (1.2) parts per million is the optimum level of fluoride content considering Northern Alberta's average daily ambient air temperature of 36.9° Fahrenheit (2.8°C) long-term average.

Should the laboratory results indicate that the domestic water supply contains less than 1 part per million, the appropriate form letter is sent to the parent or guardian. This letter informs the parents as to the content of the existing water supply and suggests the optimum amount of fluoride supplement that will be required for a child of a particular age (Fig. 3). We also enclose with this letter what we consider an excellent explanatory pamphlet available from Proctor and Gamble, enitled "Fluorides = Few Cavities."

The dosage schedule we present is correlated to what would be considered the optimum water fluoride content of 1.2 parts per million for our geographic area and is an approximation of the recommended daily dosages of available charts.[3] The schedule is easy to follow and is tailored to our needs in an attempt to achieve maximum benefits. Other geographic areas would probably adjust dosages to suit their particular needs. Generally, infants are not started until about three months of age

because of the time required to process applications and dispense the supplement, and not because some experts question the value of prescribing fluoride supplements at that early age for fear of dental fluorosis.[4]

Dear

Growing children need adequate supplies of fluoride. In families where domestic water supplies contain inadequate amounts of fluoride the Sturgeon Health Unit, in cooperation with the Alberta Social Services, will supply free fluoride supplements.

Since the fluoride is incorporated into the developing tooth enamel, the supplements should be started at birth and continued until age 12. The younger the child is when he starts the fluoride supplements, the greater the benefits will be. Since almost all the crowns of the permanent teeth are already formed by age eight, fluoride supplements will not be started for children eight years of age or over. However, children who start on fluoride supplements before this age may continue until age 12.

Before prescribing fluoride supplements, the fluoride content of your water supply must be known so that the dosage can be adjusted accordingly. A sample of your water has been analyzed, and was found to contain parts per million fluoride.

Your prescription is as follows:

CHILD DOSAGE

A record of each prescription will be kept on file at the health unit and will be renewed at the proper expiry date.

It should be remembered that for maximum benefits, the supplements must be given exactly as prescribed and on a regular basis.

If these supplements are used for the first 12 years of life, and you encourage your child to develop good dental health habits at an early age, his teeth can last a lifetime, free from needless decay.

If you have any questions about the fluoride supplements or other dental care, please contact the dental department of the Sturgeon Health Unit.

No Charge Is Made For Fluoride Supplements.

Fig 3 Notice confirming need for fluoride supplementation and the dosage.

As aforementioned, we have our own regime of fluoride dosage presentation but it is very similar to the one in the study of Aasenden and Peebles,[3] where they achieved a reduction in caries in both deciduous and permanent teeth of approximately eighty per cent. This is a striking reduction, even greater than that which generally results from fluoridated water. It is also in keeping with recent various other studies, i.e., Hennon, Stookey and Beiswanger where the degree of fluorosis, if any, was cosmetically acceptable and the benefit produced far outweigh any possible risk.[5]

At this health unit the formal prescription fluoride supplement slip, as required by law and which is provided by the Government, is written up by the staff and presented to the Dental Officer of Health for signature. In addition to the standard prescription information of age, name, date, address, and dosage, I have the staff assign a prescription number and also the fluoride content of the domestic water supply. The prescription is appropriately filed after being processed (Fig. 4).

One can readily see that with a large rural health unit and a good participation ratio a considerable amount of clerical work and record keeping is involved. This is where a computer is very useful. All pertinent

Prescription for Fluoride Drops

Date

Name Age

Address

Rx Sodium fluoride 0.2G
Distilled water 30.0 ml.

To be supplied in a plastic dropper bottle delivering 1 mg. of fluoride ion in 8 drops.

Sig: drops daily, to be taken thoroughly stirred in water or fruit juice in an amount that will be consumed at one time.

This prescription may be refilled times.

Signed Physician/Dentist

Notice to Patient or Parent

1. This prescription will be filled free of charge by your local Health Unit or City Health Department.
2. Fluorides should always be stored out of the reach of children.

Fig 4 Prescription form, including Rx No. and fluoride content:

formation to be used is obtained from the prescription rm and is transferred to the Master Computer Fluoride eet.

This master sheet is mailed to the computer centre, here the information is key punched into the computer. ther provisions which are programmed into the com- ter are the dosage schedules and the renewal times r each prescription. One unique feature of our pro- am is that once a child is enrolled and continually sides in the area, he or she will automatically get a ntinuous supply of fluoride supplements of the ap- opriate dosage for his or her age group until the age 12, at which time the child's name is automatically leted from the program. As the computer is program- d to know how long a bottle of fluoride drops will t for each participant, providing the drops are given the parent as prescribed, a new bottle should arrive out the same time as the old supply runs out. The mputer is also programmed to indicate when a dosage ange is required, at which time the dentist, for legal rposes, signs a new prescription. The computer is ivated for this program on a monthly basis. The com- ter also processes address labels and prescription tle labels, as well as a print-out log list for that par- ular month.

The computer print-out or log list gives a ready reference of all children selected for refills and change of dosage . . . the data check adds new names to the existing program . . .

The address labels contain the child's name and ad- ss and the postal code. This label has an adhesive king which is affixed to the number 000 Jiffy Ship- g Bag, which we use to enclose the bottles for mail-

ach bottle is also individually labelled, giving the ne of the child, directions as to dispensing directly tongue or cheek or in water, milk or juice, the name the prescribing dentist, prescription number which esponds to signed prescription, and the date dis- sed.

he computer print-out or log list gives us a ready ref- ce of all the children whom the computer has select- for refills and change of dosage, plus renewal or tion from the program. On each monthly print-out mark the lot number of that month's shipment of ride supplements, as also required by law. The log also gives the grand monthly count and present status for each category, renewals, new patients, and deletions originally coded 1, 2, 3, on the master sheet.

On the 15th of any typical month, we submit the information on the master sheet for all new registrants in the program. The data clerk adds this new group of names and information to the existing program, and by the end of the month all the information is processed and the computer is activated. In approximately 10 minutes and at a material cost of approximately $10.00, all necessary material and information on 4000 participants is fed back to us in the form of address labels, bottle labels and a log sheet.

The containers of fluoride supplement are picked up at the same time as the data are obtained at the computer centre. When the renewals are mailed the appropriate form letter is enclosed, giving pertinent information (Fig. 5).

Dear

Our records show that if you regularly gave the fluoride supplements to your child/children, the bottle(s) should almost be empty. We are enclosing a new prescription with a bottle of fluoride supplement so your child's developing teeth do not experience a fluoride deficiency interval.

Your new prescription is as follows:

CHILD DOSAGE

Although the fluoride reduces the possibility of decay, it is still hoped that you encourage your child to develop other good dental health habits, such as proper and regular tooth brushing, regular dental visits, a balanced diet following Canada's food guide, and minimizing between meal use of foods and beverages containing sugars.

If for any reason you have surplus supplements (two or more full bottles) on hand please notify us by telephone or by mail so we can adjust the mailing of supplements to you until the surplus is used and thereby prevent unnecessary wastes.

If you have any questions on dental care please feel free to contact the dental department of the Sturgeon Health Unit.

Yours truly,

Fig 5 Form letter sent at renewal of fluoride supplements.

What was once a long drawn-out, tedious, two or three day session of going through cards, typing out labels and renewing dosages is now reduced to an hour or so of assembly line efficiency. The two labels are printed and sequenced consecutively on the same computer print-out. One member of the dental staff takes the label printout, peels the labels from the backing and places the address label on the packages and the directions label on the bottle. She then inserts the bottle and accompanying information in the package and passes the package to an assistant who staples it and places the franking machine stamp on it. The packages are then placed in a mail bag and taken to the post office for delivery.

DISCUSSION

A method of fluoride supplementation has been presented. Critics might say that some households may have a storage depot of fluorides, but in a telephone survey which we undertook, we found this was not the case. Approximately 80 per cent of the parents surveyed said that they gave the fluoride on a daily basis; the other 20 per cent admitted they gave the drops on an intermittent basis, missing days here and there, but none wished to discontinue participation in the program.

As noted in the letter, when we mail out a new supply of fluoride drops, to prevent an undesirable accumulation, we include a short footnote asking the parents to notify us if they have an excess supply of fluoride supplements on hand (Fig. 5).

Considering the number of recipients so far (5500 active and completed) involved in the program, we get relatively few calls. We feel that the automatic renewal of the exhausted supply at predetermined times serves as a reminder and a motivational force for parents to use the fluoride drops. This program has been in effect approximately eight years and has been computerized for the last three years.

We are currently looking into the feasibility of extending the computerized fluoride supplement program for other interested health units throughout the Province of Alberta. The computerization will also facilitate the follow-up survey we hope to undertake to assess the impact of our program on the reduction of dental caries for children in the Sturgeon Health unit.

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X-ray diffraction investigation of dental amalgam containing indium

The incorporation of small amounts of indium in amalgam (>5 per cent) decreases significantly the rates of formation and amounts of the Υ_2 (Sn_7Hg) and Υ_1 (Ag_3Hg_4) phases, which is attributed primarily to the low Hg/alloy ratio required for trituration when indium is present. In reacts with the dental alloy components to form the binary phases Sn_4In and Ag_2In, which have the same crystal structures as Υ_2 and Υ_1 respectively, allowing for the interchange of Hg and indium in the lattice structures. The increase in the (24 hour) strength of amalgam by indium is attributed to the substantial decrease in the amount of Υ_2 formed and also to the partial replacement of Hg by Indium in Υ_2.

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In two previous communications*, the author reported n the effects of indium (In) in conventional[1] and disper- on-type[2] dental amalgams. Indium was incorporated into ıe amalgam by admixing In powder to the dental alloy ɔwder, and the powder composite was then triturated ith mercury (Hg) to form the amalgam.

The incorporation of In decreases substantially the nount of Hg required for amalgamation (by decreasing e surface tension and increasing the wetting power of g). Also, the compressive strength (24 hour) of both con- ntional and dispersion-type amalgams is significantly creased by the addition of In; however, the setting rate creases, particularly for conventional-type amalgam. ıe optimum amount (using 24 hour compressive strength criterion) of In in the powder composite is approxi- ately 10 per cent, corresponding to a residual In content the amalgam of about 5 per cent or less[1] (all concentra- ɔns in wt per cent), and the optimum Hg/alloy (weight) tio for trituration is about 0.75/1.

It was proposed that the increase in compressive ength of amalgam with In addition results from the crease in the amount of tin-mercury phase (Υ_2) present, ıce it has been shown that Υ_2 is deleterious to the fracture ength[3] and corrosion resistance[4] of amalgam, and that amount of Υ_2 decreases with residual Hg content.[5] In s paper, the results of an x-ray diffraction investigation conventional-type amalgam containing In are present-

The rates of formation and relative amounts of the ncipal amalgam phases are determined and discussed in ationship to the previously reported compressive ength results.

MATERIALS AND METHODS

A dental alloy powder (-325 mesh particle size) which alyzed approximately as follows: 69 per cent silver (Ag), per cent tin (Sn), 5 per cent copper (Cu), 1 per cent zinc (Zn) was used in preparing the amalgam specimens for x-ray diffraction studies. For the In-containing amalgam specimens, In powder (-325 mesh particle size) was admixed to the above dental alloy powder prior to trituration. Amalgam specimens, 4 mm dia x 8 mm, were prepared by placing the powder composite and Hg in a capsule containing a cylindrical pestle, and triturating with a Silimat amalgamator for 10 seconds. All the amalgam specimens were condensed in a cylindrical mould for 1 minute at a pressure of 68.94 MPa (10,000 psi).

The x-ray diffraction results were obtained using Cu K_a radiation and a Ni filter. All samples were irradiated using the same input power and x-ray counter settings, and thus the relative amounts of the amalgam phases present are obtained directly from the corresponding diffraction intensities (counts per second — cps). In preparation for x-ray diffraction, the amalgam specimens were wet ground on 600 grit paper to remove the end regions, which give abnormally large diffraction peaks for Υ_2 due to the preferred orientation of the basal planes in the end regions resulting from the high condensation pressure.[6]

RESULTS AND DISCUSSION

(i) Amalgam phases and compositions

In the literature on dental amalgams, the symbols Υ_2, Υ_1 and Υ represent the binary phases Sn_7Hg, Ag_3Hg_4 and Ag_3Sn, respectively. The stoichiometric formulae are only approximate since the phases have composition ranges. Moreover, the thermodynamics of alloy phase equilibria requires that the chemical potential of a component be equilibrated in all phases, so that all components comprising the amalgam will be found in each phase, the amount depending on the component's activity coefficient in the phase. The microprobe investigation of amalgam phases by Mahler et al[7] provides experimental evidence of the equilibration law: Υ_1 analyzed approximately 1.8%Sn (for which the stoichiometric formula $Ag_{22}SnHg_{27}$ was suggested), Υ_2 analyzed approximately 0.3%Ag, and Υ approximately 2.3%Hg. According to the ternary Ag-Sn-Hg phase diagram proposed by Gaylor,[8] the Υ phase can

* Journal, volume 45, page 60 and 64.

dissolve Hg up to about 15 per cent. The degree to which chemical potential equilibration among phases is attained for a given amalgam will depend on several factors, including particle size, trituration energy, temperature, and setting time. Generally, chemical potential equilibration is attained only in the surface regions of the particles when the reaction is diffusion controlled. To indicate the presence of the three principal components (Ag, Sn, Hg) in each of the amalgam phases, the phase formulae for specimen 4 in Table 1 (to differentiate from the binary alloy phases) are written as Υ:Ag_3 (Sn,Hg), Υ_1:Ag_3 (Hg,Sn)$_4$, and Υ_2: Sn_7 (Hg, Ag). Whenever bracketed formulae are shown, the first element is predominant of those included in the brackets.

When In is added to amalgam, the above phases will also include varying amounts of indium. Table 1 gives the principal phases that were identified in the In alloys and amalgams. Indium forms the binary phases Sn_4In and Ag_2In[9,10] which are here designated Υ_3 (Sn_4In) and Υ_4(Ag_2In) to facilitate discussion. The Υ_3 phase has the hexagonal crystal structure of Υ_2 and only slightly different lattice parameters, so that their diffraction or reflection peaks (2θ) are nearly coincident for the (10.1) plane: 32.1° for Υ_3 (specimen 1) and 32.2° for Υ_2 (specimen 4). The Ag_2In phase (Υ_4) has a cubic crystal structure similar to Υ_1 (body-centred cubic), both of which are isotypic with the Υ-brass structure. The diffraction peak for the (321) plane occurs at 33.1° for Υ_4 in the In/Ag alloy (specimen 2) compared to 33.4° for Υ_1 in amalgam (specimen 4.). The significance of the similarity in structures is that In can and does replace some of the Hg in the Υ_2 and Υ_1 phases in amalgam containing In. In specimen 5, prepared by trituration of the dental alloy — 10 per cent In powder composite with a Hg/alloy ratio of 1/1, a small but measurable (and reproducible) shift of the 10.1 reflection from Υ_2 towards Υ_3 was observed, indicating that some replacement of Hg by In had occurred (the 2θ values can be estimated to ±0.05°). No measureable shift in the 321 reflection from Υ_1 towards Υ_4 was observed for the In-containing amalgam, indicating replacement of Hg by In may not have been as extensive as in Υ_2.

It is noted that the compound Ag_3In (Υ_5), which has an hexagonal close-packed crystal structure similar to Ag_3Sn, can form in specimen 2; however, it is not detectable for the Ag/In ratio used (1/1). To account for the absorption and replacement phenomenon described above, the phases in the In/alloy (specimen 3) are shown as ternary compounds and in the In-containing amalgam (specimen 5) as 4–component compounds. Again, the first element is the predominant component of those included in the brackets.

(ii) Rates of formation and relative amounts

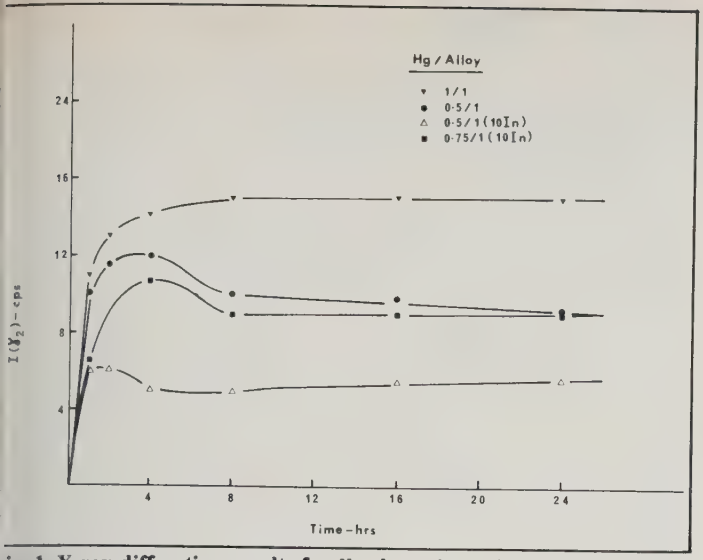
The intensity vs. time curves for the Υ_2, Υ_1, and Υ phases for several amalgam compositions are given in Figures 1, 2 and 3, respectively. The intensities for the Υ_2, Υ_1, and Υ phases were determined from diffraction peaks occurring at approximately 32.2°, 33.4°, and 39.6° respectively (2θ angles), and the intensity values are estimated to be accurate to ±10 per cent.

Two effects of In are immediately obvious from the x-ray diffraction results given in Figures 1 and 2. First, the

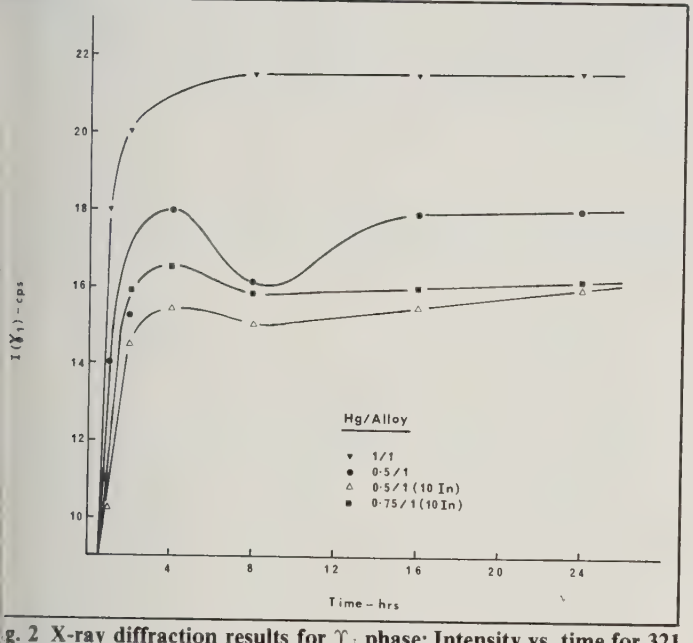
Table 1

X-ray diffraction data for alloy and amalgam phases

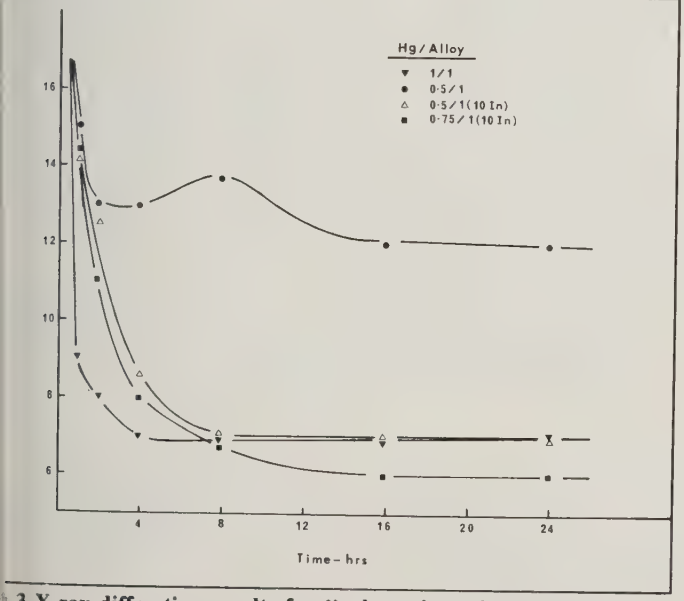
	Observed phase		Diffraction data		
Specimen	Approximate formula	Crystal structure	Reflection plane	2θ	Intensity (cps)
1. In/Sn					
0.25/1	Υ_3:Sn_4In	hex.	(10.1)	32.1	>87
2. In/Ag					
1/1	Υ_1:Ag_2In	cubic (Υ-brass)	(321)	33.1	47
	Υ_5:Ag_3In	h.c.p.	(211)	n.d.	n.d.
3. In/Alloy					
1/1	Υ:Ag_3(Sn,In)	h.c.p.	(211)	39.6	30
	Υ_3:Sn_4(In,Ag)	hex.	(10.1)	31.85	8
	Υ_4:Ag_2(In,Sn)	cubic (Υ-brass)	(321)	33.2	31
4. Hg/Alloy					
1/1	Υ:Ag (Sn,Hg)	h.c.p.	(211)	39.6	7
	Υ_1:Ag_3(Hg,Sn)$_4$	b.c.c. (Υ-brass)	(321)	33.4	22
	Υ_2:Sn_7(Hg,Ag)	hex.	(10.1)	32.2	16
5. Hg/Alloy(10In)					
0.75/1	Υ:Ag_3(Sn,In,Hg)	h.c.p.	(211)	39.6	6
	Υ_1:Ag_3(Hg,In,Sn)$_4$	b.c.c. (Υ-brass)	(321)	33.4	16
	Υ_2:Sn_7(Hg,In,Ag)	hex.	(10.1)	32.15	9



ig. 1 X-ray diffraction results for Υ_2 phase: intensity vs. time for 10.1 eflection.



g. 2 X-ray diffraction results for Υ_1 phase: Intensity vs. time for 321 flection.



3 X-ray diffraction results for Υ phase: intensity vs. time for 211 ection.

initial setting or reaction rate (the slopes of the intensity curves at zero time) decreases with the Hg/alloy ratio used for trituration. The decrease in setting rate with Hg content is greater when In is incorporated into the amalgam, so that the amalgam specimen prepared from powder composite containing 10 per cent In powder, and triturated using an Hg/alloy ratio of 0.75/1, is slower setting than the amalgam prepared using a 0.5/1 ratio for trituration but containing no In. The retardation of the setting rate by In is also evident from the small but finite rise in the Υ_1 and Υ_2 curves after 24 hours (extrapolated using three day intensity values), indicating that the reactions are still proceeding slightly. In contrast, the Υ_1 and Υ_2 curves for the In-free amalgam specimen triturated with 1/1 Hg/alloy ratios are relatively constant after about eight hours. The above results are in agreement with the reported[1] lower early strength for amalgam containing In, which was attributed to a lower residual Hg level and a decreased interdiffusion rate on replacement of Hg by In.

The second obvious effect of In is the significant decrease in the amount of product phases (Υ_2 and Υ_1) formed in the amalgam, in particular Υ_2. When compared to the In-free amalgam specimen (Hg/alloy ratio of 1/1), the In-containing amalgam specimens prepared using 0.75/1 and 0.5/1 trituration ratios show (at 24 hours) Υ_2 levels that are approximately 40 and 65 per cent lower respectively (c.f. Fig. 1). The low Υ_2 and Υ_1 amounts must be attributed primarily to the low residual Hg contents of the In-containing amalgams.[1]

The intensity vs. time curves for the Υ phase are given in Figure 3. In discussing the Υ phase results, two additional features in Figures 1 and 2 for the Υ_2 and Υ_1 results need be noted: the relatively higher level of Υ_2 in the In-free amalgam when compared to the In-containing amalgam for the trituration ratio of 0.5/1, and that the amount of Υ_2 decreases considerably more with the Hg/alloy trituration ratio than does the Υ_1 phase for the In-free amalgam (e.g., the intensity of Υ_2 in the 0.5/1 trituration specimen is 40 per cent lower than that in the 1/1 trituration specimen, while the corresponding decrease in the Υ_1 intensity is only 14 per cent. This suggests that on amalgamation Υ (Ag_3Sn) reacts with Hg to initially and preferentially form Υ_1 (Ag_2Hg_4), and the released Sn (from Υ) subsequently forms Υ_2 (Sn_7Hg). However, for low Hg contents, only a small amount of Υ_2 can form, and the remainder of the released Sn reacts with the remaining dental alloy to form more Υ phase.

The available ternary phase diagram data[11] for the Ag-Sn-Cu alloy system show that the dental alloy (assuming an approximate ternary composition of 70%Ag-25%Sn-5%Cu) is comprised mostly of Ag_3Sn (containing some Cu) and a small amount of Cu_3Sn (containing some Ag). Increasing the Sn concentration moves the alloy composition closer to the Ag_3Sn field, i.e., the isothermal phase transformations are such that the released Sn regenerates

more Υ phase. For the In-containing, low mercury amalgams, the released Sn can react with In to form several solid solution or compound phases (c.f. In-Sn phase diagram[10]), including the Υ_3 phase. The latter, which has the Υ^2 crystal structure but a considerably lower reflection intensity (8.0 cps vs. 16 cps — c.f. specimens (3) and (4), Table 1), does not increase the total "Γ_2" intensity proportionately. Since there is no secondary reaction to regenerate the Υ phase as in the In-free, low-mercury amalgam, the low Υ_2 levels in the In-containing amalgams are not associated with higher Υ levels.

(iii) Transient maxima and minima

The Υ_1 and Υ_2 intensity-time curves for the low Hg (In-free) and In-containing amalgams show transient maxima and minima at approximately four and eight hours, respectively. There are no similar undulations in the intensity curves for the high Hg (1/1 trituration ratio) amalgam specimens.

The above anomalies may be attributed to the equilibration of the Hg chemical potential (in the Υ phase largely) which proceeds by a slower diffusion process. The Υ_1 and Υ_2 phases form relatively early in the amalgamation process, and have relatively high Hg chemical potentials corresponding to their relatively high Hg contents. Chemical potential equilibration requires Hg for absorption into the remaining, unattacked Υ phase, and the sources of this Hg in the low Hg amalgams are the initially formed Υ_1 and Υ_2 phases.

Thus, during the equilibration period, some Υ_1 and Υ_2 crystals break down (~10 per cent), with the released Ag and Sn reverting back to Υ phase, and the released Hg being absorbed mostly into the Υ phase. The absorption of Hg into the Υ phase also contributes to the total transient rise in Υ intensity curve for the low mercury amalgam (trituration ratio 0.5/1) shown in Figure 3. The Hg chemical potential equilibration occurs in all amalgam specimens but is detected only in the low Hg amalgams. For the In-containing amalgams, the transient depressions in the Υ_1 and Υ_2 intensities are considerably smaller, and the Υ intensities show no noticeable transient maxima. The released Ag, Sn and Hg on the partial (and lesser) breakdown of the Υ_1 and Υ_2 phases in the In-containing amalgam react with the In to form the In compounds described earlier, so that there is little, if any, transient regeneration of Υ.

CONCLUSIONS

The effect of In on the amounts and rates of formation of the principal phases in conventional-type dental amalgam has been determined by x-ray diffraction analysis. The In was incorporated into the amalgam by admixing In powder to conventional dental alloy powder. Indium increases substantially the plasticity of amalgam so that a lower Hg/alloy ratio may be used for trituration. The In-containing amalgams showed a significant decrease in the rates of formation and amounts of the Υ_2 and Υ_1 phases, in particular that of Υ_2. For the amalgam prepared from the powder composite containing 10 per cent In powder, the amount of deleterious Υ_2 phase decreased by approximately 40 and 65 per cent for an Hg/alloy trituration ratio of 0.75/1 and 0.5/1 respectively, when compared to the In-free standard amalgam triturated with a Hg/alloy ratio of 1/1.

The In-80Sn and 50In-50Ag alloy specimens (prepared by triturating appropriate powder mixtures) exhibited diffraction patterns for the compounds $Sn_4In(\Upsilon_3)$ and $Ag_2In(\Upsilon_4)$ respectively. The crystal structures of Υ_3 and Υ_4 are the same as those of Υ_2 and Υ_1 respectively, indicating the interchangeability of Hg by In. In the In-containing amalgams, the replacement of Hg by In in Υ_2 is indicated by a slight but noticeable shift in the diffraction peak. The increase in strength (24 hour) of amalgam on In addition previously reported may be attributed to the substantial decrease in the amount Υ_2, and also to the replacement of some Hg by In in the Υ_2 structure.

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Les fluorures et l'environnement humain

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De tout temps, l'homme a été exposé à des quantités plus ou moins grandes de fluorures dans l'air, l'eau et l'alimentation. Les effets bénéfiques des fluorures au niveau de la résistance des dents à la carie dentaire sont connus depuis environ 1930.

Compte tenu de l'augmentation constante des fluorures dans l'environnement (rejets industriels, fertilisants, etc.), l'apport total en fluorure est peut-être suffisant pour produire une résistance optimale des dents à la carie dentaire et c'est pourquoi l'on s'interroge sur la nécessité d'effectuer la fluoruration des eaux de consommation.

Plusieurs études ont été publiées par différents auteurs sur l'apport total en fluorure chez l'individu.[1-2-3-4] Il ressort de ces études que dans les régions où l'eau de consommation a une faible teneur en fluorure, l'apport total varie entre 0,33 et 3,4 mg/jour avant fluoruratio et peut atteindre 5 mg/jour après fluoruration. Il appara que, suite à la fluoruration, une réduction marquée d la carie dentaire intervient toute en ne produisant au cun effet nuisible à l'organisme humain.[5]

Dans la présente étude, nous évaluons si l'appo quotidien total en fluorure provenant de l'air, de l'ea et des aliments chez le québécois est similaire à celu enregistré dans les études nord-américaines. Nous dé terminons si un tel apport est adéquat, c'est-à-dire s' provoque une réduction optimale de la carie dentair tout en étant dans des limites acceptables pour n provoquer aucun effet nuisible chez le québécois.

APPORT EN FLUORURE DE L'AIR

Il a été avancé à maintes reprises et principalemer depuis la fluoruration des eaux de consommation qu l'apport en fluorure de l'air suite à la pollution industrie le pouvait présenter des dangers pour la population. Plu sieurs études ont été réalisées pour déterminer cet ap port. Aux Etat-Unis, des prélèvements ont été effectué sur une période de trois[3] ans dans des milieux urbain et 90% des 11 300 prélèvements contenaient moins d 0,05 ug de fluorures solubles par mètre cube d'air[6], c qui occasionnerait une inhalation de 0,01 mg de fluo rure par jour. A Londres, l'apport en fluorure de l'ai pour un homme moyen a été établi à 0,003 mg/jour e temps normal et à 0,03 mg/jour lors d'un épais brouil lard ou d'une pollution intense.[7] Ces études révèler qu'une contamination générale des populations suit à la pollution industrielle par les fluorures n'a pas ét constatée.

Notons que certains groupes de populations vivant à proximité des usines d'où proviennent des émanations de fluorures peuvent inhaler des quantités supérieures de fluorure. Des teneurs en fluorure de 0,098 à 0,485 mg/m^3 ont été signalées à proximité d'une usine de superphosphate en Union Soviétique.[8] Une enquête réalisée par Sadilova[9] en 1957 au voisinage de deux usines d'aluminium en Union Soviétique rapportait les teneurs moyennes en fluorure dans l'air ambiant de 0,01 à 0,13 mg/m^3 pour une inhalation quotidienne de 0,2 à 2,6 mg de fluorure. Ces deux études ont été confirmées par l'apparition de cas de fluorose dentaire et par la faible incidence des caries dentaires chez les écoliers de ce secteur.

Suite à ces études, il est important de déterminer si la pollution industrielle par les fluorures affecte d'une façon aussi marquée les québécois qui vivent près des usines produisant ces émanations. Les Services de Protection de l'Environnement effectuent depuis quelques années des relevés de la teneur en fluorure de l'air ambiant des alumineries du Québec à Arvida, Beauharnois, Shawinigan et d'une usine de fabrication du phosphore à Varennes.[10-14] L'étude des moyennes des déterminations quotidiennes montre que la teneur en fluorure de l'air ambiant diminue rapidement à mesure que l'on s'éloigne de l'usine et que cette teneur semble plus élevée du côté des vents dominants. La quantité moyenne maximale de fluorure pour les usines étudiées est de 5,31 µg/m^3 à 0,4 km de l'aluminerie d'Arvida. Comme un individu normal qui se livre à un travail d'intensité moyenne inhale 20 m^3 d'air par jour[15], un québécois vivant dans un secteur de 0,4 km autour de l'aluminerie d'Arvida recevra un apport en fluorure de l'air de 0,1 mg/jour. Notons que certains employés des usines considérées présenteront un apport moyen en fluorure, provenant de l'air, plus élevé car ils sont en contact plus ou moins direct avec la source d'émanation des fluorures.

D'une façon générale, nous pouvons dire que l'apport moyen en fluorure de l'air au Québec se situe en deçà de la valeur moyenne maximale de 0,1 mg/jour trouvée dans une zone de retombées industrielles de fluorure. Notons qu'un tel apport en fluorure est minime et ne se rapproche aucunement des valeurs trouvées en Union Soviétique dans les années cinquante.

Une étude confirmant le faible apport en fluorure dans les zones de retombées industrielles au Québec a été réalisée par Archer, Gurekus et White en 1975 chez les écoliers de trois écoles de Beauharnois situées à moins de 1/2 mille de l'aluminerie.[16] Cette étude conclut que l'apport additionnel en fluorure occasionné par l'atmosphère n'a pas accru de façon significative la teneur en fluorure des urines chez ce groupe d'écoliers.

APPORT EN FLUORURE DE L'EAU

Suite à l'intérêt soulevé par l'influence des fluorures sur la santé dentaire, une littérature abondante est parue sur la teneur en fluorure des eaux naturelles. Cette littérature révèle que la teneur en fluorure des eaux de surface est habituellement inférieure à 1 mg/l, alors que les eaux souterraines sont susceptibles de contenir des quantités supérieures de fluorure selon les conditions géologiques.[3-7]

Au Québec, nous avons fait effectuer l'analyse de 197 puits disséminés sur le territoire. Les résultats des déterminations analytiques indiquent que 26 puits, soit 13%, contiennent une teneur en fluorure supérieure à 1 mg/l. Un maximum de 10,8 mg/l a été enregistré pour un puit. C'est donc dire que bien avant l'avènement de la fluoruration contrôlée, des québécois absorbaient déjà autant et dans certains cas beaucoup plus de fluorures que suite à la fluoruration et celà d'une façon naturelle sans qu'aucun problème de santé publique n'est été décelé.

Avant l'avènement de la fluoruration les populations des agglomérations urbaines du Québec, desservies par des usines de filtration, recevaient l'apport en fluorure déjà présent dans les eaux de surface utilisées. Le ministère des Affaires sociales a fait effectuer des déterminations analytiques de la teneur en fluorure des eaux brutes utilisées par les usines de filtration du Québec en mai 1976.[17] Ces déterminations indiquent une teneur en fluorure inférieure à 0,25 mg/l pour toutes les usines de filtration du Québec et des teneurs minimales de l'ordre de 0,02 mg/l ont été enregistrées.

Avec l'avènement de la fluoruration obligatoire dans les usines de filtration du Québec, les personnes

Cet article constitue le condensé de l'étude "Les fluorures et l'environnement humain" préparé par les mêmes auteurs en juin 1978. L'étude complète est disponible à la Direction de la Santé communautaire, Ministère des Affaires sociales, 1075, Chemin Ste-Foy, Québec, Québec G1S 2M1.

desservies par ces usines verront leur apport en fluorure, provenant de l'eau de consommation augmenter. L'apport additionnel en fluorure qui résultera d'une eau de consommation dont la teneur sera ajustée à 1,2 mg/l est fonction de la température maximale moyenne et du poids corporel.[18] Galagan, Vermillion, Nevitt, Stadt et Bart[19] ont constaté, suite à une enquête sur la ration hydrique des enfants de 1 à 10 ans dans deux régions de la Californie, que la ration hydrique était fonction de l'équation suivante:

$$R = 0.038 - 0.0062\ \theta$$

ou

R = nombre d'onces d'eau par livre de poids corporel

θ = température moyenne maximale en degré fahrenheit

Des études sur la ration hydrique ont été réalisées entre autres par Nuemann[20], Crosby et Shepherd[21], Kruger[22], Walker et collaborateurs[23], McPhail et Zacherl.[24] Elles ont, dans l'ensemble, donné des résultats assez concordants avec l'équation de Galagnan et collaborateurs[19] pour les enfants jusqu'à l'âge de 10 ans environ. Notons que les données de ces études tiennent compte de l'eau de consommation utilisée lors de la préparation des breuvages (lait reconstitué, jus reconstitué, eau gazeuse, etc.).

Au Québec, la température moyenne maximale dans les principales régions habitées varie entre 42,6°F (5,9°C) et 52,4°F (11,3°C) (25). Comme il a été constaté qu'à des températures inférieures à 50 F (10 C) la consommation d'eau avait tendance à augmenter suite à la chaleur artificielle des maisons et des écoles et aux vêtements chauds portés par les enfants[24,26], nous considérons que la consommation d'eau au Québec est relativement constante et se rapproche de celle donnée par l'équation de Galagan et collaborateurs[19] à une température de 50°F (10°C). Nous obtenons à l'aide de cette équation une consommation quotidienne de 0,0272 once d'eau par livre de masse corporelle (17,1 ml/kg) pour les enfants jusqu'à l'âge de 10 ans. Le tableau 1 présentant la ration hydrique quotidienne et l'apport en fluorure provenant de l'eau de consommation avant et après fluoruration pour les enfants de 0 à 10 ans, a été réalisé à l'aide de cette consommation quotidienne. Les masses corporelles utilisées au tableau quatre sont tirées de "Textbooks of Pediatrics" de Nelson[27] pour les garçons américains du 50ème percentile.

La consommation d'eau augmente progressivement de 1 à 10 ans. Elle passe de 0,17 litre (1 an) à 0,56 litre (10 ans) alors que l'apport en fluorure provenant d'une eau à 0,15 mg/l F^- se situe entre 0,03 et 0,08 mg/jour.

Chez l'adulte, la consommation moyenne d'eau d'après les données de Largent[28], est d'environ un litre par jour. Une telle consommation d'une eau dont la teneur naturelle en fluorure est de 0,15 mg/l signifie un apport quotidien moyen en fluorure provenant de l'eau de 0,15 mg.

Suite à la fluoruration des eaux de consommation la teneur en fluorure sera portée à 1,2 mg/l et l'apport moyen en fluorure se situera entre 0,2 mg/jour (1 an) et 0,67 mg/jour (10 ans) alors qu'elle atteindra 1,2 mg/jour chez l'adulte.

Tableau 1

Apport en fluorure provenant de l'eau de consommation chez le garçon Québécois âgé de 1 à 10 ans

Age	Masse (1)		Consommation Quotidienne d'eau en litre (2)	Apport en F^- avant Fluoruration eau à 0,15 mg/l	Apport en F^- après fluoruration eau à 1,2 mg/l
Année	kg	lbs		mg F^-	mg F^-
1	10	22	0,17	0,03	0,20
2	13	28	0,22	0,03	0,26
3	15	32	0,26	0,04	0,31
4	17	36	0,29	0,04	0,35
5	18	41	0,31	0,05	0,37
6	22	48	0,38	0,06	0,46
7	25	54	0,43	0,06	0,52
8	27	60	0,46	0,07	0,55
9	30	66	0,51	0,08	0,61
10	33	72	0,56	0,08	0,67

(1) Nelson (27)
(2) 0.272 once/lbs (17,1 ml/kg)

APPORT EN FLUORURE PAR LES ALIMENTS

Les fluorures se retrouvent dans pratiquement tous les aliments à des concentrations qui varient cependant d'une façon marquée d'un aliment à l'autre. Notons par exemple que le thé peut contenir des quantités de fluorure dépassant 100 ug/g alors que le café en contient à peine 1 ug/g.[1] Etant donné ces fluctuations, il importe de tenir compte des habitudes alimentaires d'une population lors de la détermination de l'apport en fluorure provenant des aliments qu'elle ingère.

Un rapport sur les habitudes alimentaires au Canada a été préparé en 1976 par le ministère de la Santé nationale et du Bien-être social.[29] Ce rapport présente pour le Québec les principaux groupes d'aliments ingérés par le québécois et les quantités ingérées par groupe d'âge. A partir de ces données et de la teneur en fluorure de chacun des constitutants, nous avons estimé l'apport en fluorure, chez le québécois, provenant des aliments qu'il consomme.

Les teneurs en fluorure de chacun des aliments du régime alimentaire ont été réalisées par le ministère de la Santé nationale et du Bien-être social sur des aliments du marché canadien et par le laboratoire du docteur John Stamm de l'Université McGill sur les aliments des supermarchés de Montréal et sur des légumes et de la viande provenant de la région d'Arvida. Pour les besoins de la synthèse ces données analytiques de même que les tableaux de consommation ne figurent pas dans cet article mais sont présents dans le rapport "Les fluorures et l'environnement humain".

Le tableau 2 résume l'information sur l'apport quotidien en fluorure provenant des aliments pour les groupes d'âges étudiés. L'apport en fluorure est de 40 ug/jour chez le nourrisson et augmente avec l'âge pour atteindre un maximum de 825 ug vers l'âge de 12 ans chez le québécois et 650 ug vers le même âge chez la québécoise. Ce maxi-

Tableau 2

Apport quotidien en fluorure provenant des aliments pour différents groupes d'âges

Age	APPORT QUOTIDIEN ug F^-			
	Québec		Canada	
	Hommes	Femmes	Hommes	Femmes
0-1	—	—	400,73	—
1-4	672,92	—	573,90	—
5-11	726,45	—	713,90	—
12-19	823,54	647,55	894,52	645,18
20-39	824,91	614,72	842,62	569,02
40-64	778,20	559,72	711,89	517,72
65-+	644,68	502,58	598,16	469,80

TABLEAU 3

APPORT SUPPLEMENTAIRE EN FLUORURE DES ALIMENTS SUITE A LA FLUORURATION A UNE TENEUR DE 1,2 mg/jour

	Potages		Legumes en conserves		Fruits en conserves		Apport Supplémentaire total
Age	Quantité g	Apport supp. (0,72 ugF^-/g) ug F^-	Quantité* g	Apport supp. (0,85 ugF^-/g) ug F^-	Quantité* g	Apport supp. (0,9 ugF^-/g) ug F^-	ug F^-
1-4	76	54,72	31	26,35	90	81,00	162,07
5-11	148	106,56	44	37,40	101	90,90	234,86
12-19	232	167,04	32	27,20	64	57,60	251,84
20-39	147	105,84	60	51,00	73	65,70	222,54
40-64	255	183,60	62	52,70	71	63,90	300,20
65 et +	113	81,36	47	39,95	47	42,30	163,61

*Etablie d'après les données du "Rapport sur les habitudes alimentaires" (29) selon les proportions de conserves par rapport aux légumes et aux fruits frais figurant dans "Coup d'oeil sur l'agro-alimentaire au Québec" 1977.

mum se maintient jusqu'à 40 ans et diminue par la suite pour atteindre 645 ug chez l'homme et 505 ug chez la femme après l'âge de 65 ans. Cet apport en fluorure provenant de l'alimentation au Québec est relativement similaire à celui calculé pour le Canada avec les mêmes données.

Parmi les estimations de l'apport en fluorure provenant de l'alimentation chez l'adulte, nous constatons des fluctuations marquées allant de 330 ug à 3400 ug par jour et rien n'indique que des problèmes de santé générale se soient présentés suite à un tel apport.[3,7,30-34] Les valeurs données par Cholak[3] pour le Canada sont de 180 à 300 ug/jour ce qui est nettement inférieur aux valeurs de notre étude. Nos valeurs se rapprochent davantage des 340-800 ug trouvés par Cholak pour la ville de Cincinnati, U.S.A., dont la teneur en fluorure de l'eau de consommation est de 0,1 mg/l, situation similaire à la teneur naturelle des eaux de consommation canadiennes.

Pour finaliser cette section sur l'apport en fluorure provenant de l'alimentation, il reste à déterminer quelle sera l'incidence de la fluoruration des eaux de consommation sur la teneur en fluorure des aliments. Nos évaluons l'apport supplémentaire en fluorure provenant de l'alimentation au tableau 3 en considérant les principaux aliments impliquées, c'est-à-dire les potages, les fruits et les légumes en conserve. En formulant l'hypothèse que la teneur en fluorure de ces aliments est de 1,2 mg/l, suite à la fluoruration, nous obtenons un apport supplémentaire qui fluctue selon les groupes d'âge entre 162 et 300 ug/jour.

APPORT TOTAL EN FLUORURE

L'apport total en fluorure chez le québécois avant et après fluoruration est présenté au tableau 4. L'apport total en fluorure avant la fluoruration est de 0,53 mg/jour à la naissance et atteint 1,07 mg/jour pendant l'adolescence et provient principalement de l'alimentation. Après la fluoruration, cet apport total fluctue entre 0,73 mg/jour et 2,38 mg/jour. Cet apport total après fluoruration provient principalement de l'alimentation pendant l'enfance alors que l'apport en fluorure provenant de l'eau de consommation progresse constamment pour devenir la principale source de fluorure vers l'âge de 12 ans.

Il est important de signaler que parmi les fluorures ingérés, seul l'ion F a un rôle bénéfique au niveau de la santé dentaire et il est de plus nécessaire que ces ions soient absorbés par l'organisme pour produire l'effet escompté.[15] Alors que les fluorures provenant de l'eau de boisson a une teneur inférieure à 16 mg/l sont presque intégralement absorbés, les fluorures provenant des aliments le sont dans une proportion de 50 à 80%.[15] Il en résulte que l'effet

TABLEAU 4

APPORT TOTAL EN FLUORURE CHEZ LE QUEBECOIS AVANT ET APRES LA FLUORURATION

		EAU		ALIMENTS		TOTAL	
age	air						
	mg/jour	Avant (0,15 mg/l) mg/jour	Après (1,2 mg/l) mg/jour	Avant mg/jour	Après mg/jour	Avant mg/jour	Après mg/jour
0-1	0,1	0,03	0,20	0,40	0,40	0,53	0,73
1-4	0,1	0,04	0,31	0,67	0,83	0,81	1,24
5-11	0,1	0,07	0,56	0,73	0,96	0,90	1,62
12-19	0,1	0,15	1,2	0,82	1,07	1,07	2,37
20-29	0,1	0,15	1,2	0,82	1,04	1,07	2,34
40-64	0,1	0,15	1,2	0,78	1,08	1,03	2,38
65 et-	0,1	0,15	1,2	0,64	0,80	0,89	2,10

cariophylactique est plus marqué à quantité égale orsque les fluorures proviennent de l'eau de consommation plutôt que de l'alimentation.

L'apport total en fluorure, après fluoruration, pour le québécois, fluctue entre 0,73 mg/jour et 2,38 mg/jour. Un tel apport se situe entre les limites des études américaines sur le sujet, 1,33 et 5,00 mg/jour[5] de telle sorte que es conclusions de ces études à l'effet que la fluoruration contrôlée ne présente aucun danger pour la population peuvent s'appliquer.

CONCLUSION

Il se dégage de cette étude que la pollution par les fluorures suite aux rejets industriels et à l'utilisation des engrais chimiques n'a pratiquement aucune incidence sur la population. L'apport actuel total en fluorure provenant de l'air, de l'eau et de l'alimentation se situe entre 0,53 — 1,07 mg/jour pour le québécois. Selon les différentes études consultées, un tel apport compte parmi les plus faibles,et demeure nettement insuffisant pour produire l'effet bénéfique escompté au niveau de la prévention de la carie dentaire.

La difficulté d'obtenir un consensus sur l'apport total en fluorure requis pour la prévention de la carie dentaire semble attribuable aux différences d'absorption des fluorures par l'organisme humain selon la provenance. Il est intéressant de constater qu'aux Etats-Unis par exemple l'apport en fluorure de l'alimentation fluctue selon les régions entre 0,33 — 3,4 mg/jour et que dans ces régions un même apport en fluorure provenant de l'eau de consommation semble provoquer le même effet bénéfique au niveau de la prévention de la carie dentaire.

Il apparaît avec une constance remarquable, dans le contexte nord-américain, que l'apport en fluorure provenant d'une eau de consommation d'environ 1 mg/l F a un effet vraiment significatif sur la prévention de la carie dentaire.

Compte tenu que l'apport total en fluorure après fluoruration est estimé entre 0,73 — 2,38 mg/jour, qu'un tel apport combiné eau-alimentation, selon les données actuelles de la littérature dans le contexte nord-américain, améliore de façon marquée la santé dentaire tout en ne présentant aucun risque pour la santé; il serait souhaitable de voir à la généralisation de la fluoruration des eaux de consommation.

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GUIDE À L'INTENTION DES COLLABORATEURS

La rédactrice en chef du Journal de l'Association Dentaire Canadienne accueillerait avec plaisir des articles inédits, des analyses critiques des documents relatifs à des progrès en dentisterie et des rapports cliniques. Il est entendu que les articles ou autres écrits présentés pour fins de publication n'auront pas été soumis à d'autres publications.

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1. Hechter, F.J. Symmetry and dental arch form of orthodontically treated patients, JCDA 44: 173-184, 1978.

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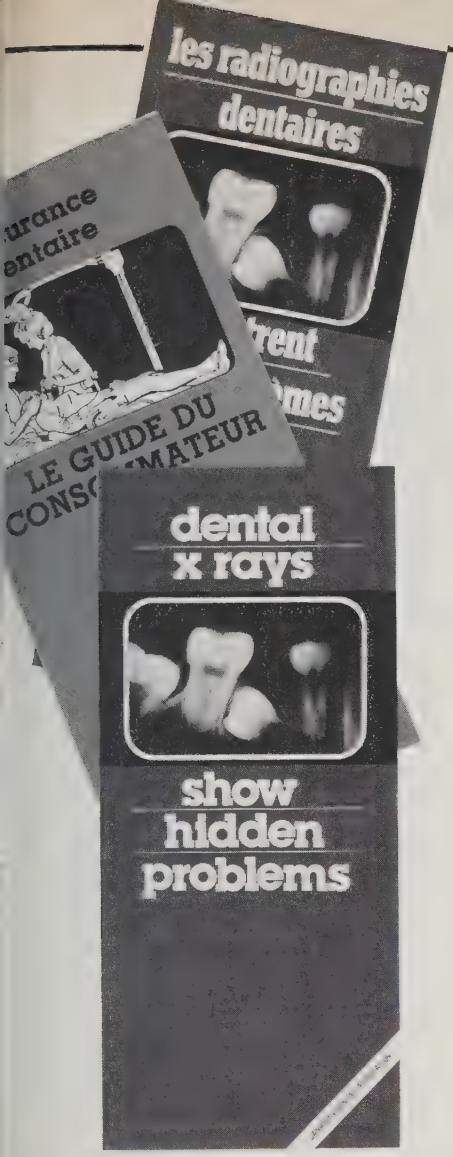

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ANNOUNCEMENTS

We urge readers to confirm meeting dates with the contact listed with each announcement.

CANADIAN DENTAL ASSOCIATION, 1980 National Convention, Halifax, Nova Scotia, July 13-16, 1980. Contact: Dr. T.D. Ingham, Nova Scotia Dental Association, P.O. Box 604, Halifax, N.S. B3J 2R7.

L'ASSOCIATION DENTAIRE CANADIENNE, Congrès national 1980, Halifax, Nouvelle-Écosse, 13-16 juillet 1980. Pour renseignements: Dr T.D. Ingham, Association Dentaire de la Nouvelle-Écosse, B.P. 604, Halifax, N.-É. B3J 2R7.

OCTOBER

CANADIAN SOCIETY OF FORENSIC SCIENCE ANNUAL MEETING, Ritz Carlton Hotel, Montreal. October 15-19, 1979. Two-day symposium on Dentistry and the Law will be held the 15th — 16th. Contact: Dr. R.B.J. Dorion, president, Canadian Society of Forensic Science. Suite 710D, Sun Life Building, Montreal, Quebec H3B 2V6.

NOVEMBER

TORONTO ACADEMY OF DENTISTRY Annual Winter Clinic, Royal York Hotel, Toronto, November 22, 1979. Contact: Academy of Dentistry, 234 St. George Street, Toronto, Ontario, M5R 2P2.

OBITUARIES

ROSS, Byron R. (Barney). Born November 15, 1898. Graduated from the University of Toronto, 1923. Dr. Ross died in Fredericton, New Brunswick. He is survived by his wife Ella and one sister.

HILL, A.N., graduated Royal College of Dental Surgeons, 1914. Lived in Dundas, Ontario.

INTERNATIONAL MEETINGS

OCTOBER

FIRST INTERNATIONAL CONGRESS ON HORMONES AND CANCER, Rome, Italy, October 4-6, 1979. Contact: professor S. Iacobelli, Laboratori di Endocrinologia Molecoloare. Instituto de Clinica Osterica e Ginecologica, Universita Cattolica, Via Pineta Sacchetti, 644-00168 Rome, Italy.

INTERNATIONAL SYMPOSIUM FOR CHILDREN'S DENTISTRY, Trieste, Italy. October 4-7. 1979. Contact: Professor Mario Silla, Clinica Odontoiatricae Stomatologica dell'Università, Ospedale Maggiore, Trieste, Italy.

AMERICAN ASSOCIATION OF HOSPITAL DENTISTS, Denver, Co., October 4-7, 1979. Contact: Dr. George A. Kentros, University of Alabama. School of Dentistry, 1919 Seventh Avenue South, Birmingham, AL 35294, U.S.A.

AMERICAN INSTITUTE OF ORAL BIOLOGY, Palm Springs, California, U.S.A., October 6-10. 1979. Contact: Mrs. Barbara P. Ward, P.O. Box 481, South Laguna, CA 92677, U.S.A.

NEW YORK STATE ACADEMY OF DENTAL PRACTICE ADMINISTRATION MEETING, Toronto. Ont., Can., October 12-13, 1979. Speaker: Dr. Harold Wirth of New Orleans. Contact: New York State Academy of Dental Practice Administration, 1736 Mount Hope Avenue, Rochester, NY 14620, U.S.A.

DENTAL SECTION OF THE AUSTRIAN MEDICAL PRACTITIONERS ASSOCIATION and the Austrian Technicians Society, Vienna. October 12-15, 1979. Contact: Bundesfachgruppe fur Zahn-Mund-und Kieferheikunde der Osterreichischen Arztekammer, Weinburggasse 10-12 Vienna, Austria.

AMERICAN ACADEMY OF IMPLANT DENTISTRY, Dallas, TX U.S.A., October 15-20, 1979. Contact: Mr. John P. Winiewicz, 469 Washington Street, Abington, MA 02351, U.S.A.

AMERICAN ACADEMY OF GOLD FOIL OPERATORS, Dallas, TX U.S.A., October 18-19, 1979. Contact: Dr. Jack G. Seymour, 3532 E Shields, Fresno, CA 93726, U.S.A.

AMERICAN ACADEMY OF DENTAL RADIOLOGY, Dallas, TX U.S.A., October 18-20, 1979. Contact: Dr. Wm. R. Wege, Medical College of Georgia, School of Dentistry. Dept. of Radiology, Augusta, GA 30902 U.S.A.

AMERICAN ACADEMY OF GOLD FOIL OPERATORS, Honolulu, Hawaii October 19-20, 1979. Contact: Dr David A. Grainger, Dept. of Operative Dentistry, Box J-415, JHMHC, College of Dentistry, University of Florida Gainesville. FL 32610, U.S.A.

INTERNATIONAL COLLEGE OF DENTISTS functions being held during the annual meeting of the American Dental Association, Dallas, TX., U.S.A. Friday, October 19, 9:30 a.m. — Executive Council of the College; Saturday October 20, 1 p.m. — Convocation (Regency Ballroom). Saturday, October 20, 6:30 p.m. — Social Hour (Regency Foyer); Saturday October 20, 7:30 p.m. — Banquet (Regency Ballroom). The speaker for the convention will be the President of the College, Dr. Cyril de Vere Green of London, England. Dr. de Vere Green received his D.D.S. in Toronto. Reservations for the banquet may be made by sending a cheque for $25.00 per person to The International College of Dentists 3138 Commodore Plaza, Miami, FL 33133, U.S.A.

AMERICAN COLLEGE OF DENTISTS, Dallas, Tx., U.S.A. October 20, 1979. Contact: Dr. R.J. Nelsen 7316 Wisconsin Ave., Suite 304, Bethesda, MD 20014, U.S.A.

EUROPEAN SECTION OF THE INTERNATIONAL COLLEGE OF DENTISTS, Paris, France. October 20, 1979 Contact: Michael Varin, ICD, European Section, 174 Boulevard Haussman, 75008 Paris, France.

ALPHA OMEGA FRATERNITY RECEPTION, ADA CONVENTION, Sheraton Dallas Hotel, Sunday October 21, 1979, 9:00 p.m. Contact: Dr. G. Perlmutter, International Secretary, 2838 Dufferin Street, Toronto, Ont. M6B 3S3

FÉDÉRATION DENTAIRE INTERNATIONALE, 67th Annual World Dental Congress, Paris, France, October 20-26, 1979. Contact: FDI, 64 Wimpole Street, London W1M 8AL. U.K.

AMERICAN DENTAL ASSISTANTS ASSOCIATION, Dallas, TX U.S.A., October 21-24, 1979. Contact: Ms. Patricia Cupkie, 666 Lake Shore Dr., SUITE 1130, Chicago, IL 60611, U.S.A.

AMERICAN DENTAL ASSOCIATION, One Hundred and Twentieth Annual Session, Dallas, Texas. U.S.A.

October 21-25, 1979. Contact: American Dental Assoication, 211 East Chicago Ave., Chicago. IL 60611, U.S.A.

ACADEMY OF DENTISTRY INTERNATIONAL, Anaheim, California, October 22-23, 1979. Contact: Dr. Albert Wasserman. 430 San Mateo Dr., San Mateo, CA 94401, U.S.A.

AMERICAN ACADEMY OF DENTAL GROUP PRACTICE, Dallas, TX U.S.A., October 24, 1979. Contact: Ms. Joann Junkins, 1709 Elka Lane, Madison, WI 53704, U.S.A.

AMERICAN ACADEMY OF MAXILLOFACIAL PROSTHETICS, New Orleans, La., U.S.A., October 27-31, 1979. Contact: Dr. J.W. Schweiger, V.A. Center, 1601 Kirkwood Hwy., Wilmington, DE 19805, U.S.A.

AMERICAN ACADEMY OF PERIODONTOLOGY, Seattle, WA U.S.A., October 31-November 3, 1979. Contact: Ms. Jean Pierson, 211 E. Chicago Ave., Suite 924, Chicago, IL 60611, U.S.A.

AMERICAN COLLEGE OF PROSTHODONTICS, Houston, Tx., U.S.A., October 30-November 1, 1979. Contact: Dr. Dean L. Johnson, 2708 Old Farm Lane, Edmond, OK 73034, U.S.A.

NOVEMBER

POSTGRADUATE COURSE IN HEAD AND NECK RAIOLOGIC DIAGNOSIS: Computerized Tomography, Tomographu, Angiography, Nuclear Medicine and Ultrasound, New York City, November 2-4, 1979. Fee $150. Category 1 Approved 17 hours. Contact: Guy D. Potter, M.D., Director, Dept. of Radiology, Lenox Hill Hospital, 100 East 77th Street, New York, N.Y. 11021, U.S.A. Telephone: (212) 794-4305.

7TH ANNUAL MEETING OF THE AMERICAN INSTITUTE OF ORAL BIOLOGY, Spa Hotel, Palm Springs, California. November 2-6, 1979. Contact: Executive Secretary, P.O. Box 481, South Laguna, CA. 92677, U.S.A.

INTERNATIONAL CONGRESS- Golden Jubilee of the Academia de Estomatologia del Peru. Third Spanish-Latin American Dental Congress, Lima, Peru. November 14-17, 1979. Contact: Av. Antonio Pinillo Soteros. Chota 760-Lima, Peru.

17TH ANNUAL SCIENTIFIC CONGRESS of the Korean Dental Association. Guaruja. Brazil, November 25-December 2, 1979. Contact: Rua Humaita 389, Cx. Postal 2523, C.E.P., 01321 — Sao Paulo, Brazil.

SOCIETY OF ORAL PHYSIOLOGY AND OCCLUSION, New York, N.Y., U.S.A., November 26, 1979. Contact: Mr. Irving Anderman, 3 Linden Pl., Middletown, NY 10020, U.S.A.

NATIONAL INSTITUTE OF DENTAL RESEARCH AND THE NATIONAL INSTITUTES OF HEALTH, Bethesda, Maryland, U.S.A. November 28-30, 1979. Pre-registration is a requirement. Contact: Ms. Janis E. Baker, CDP Associates Inc., 6000 Executive Boulevard, Suite 510, Rockville, MD 20852, U.S.A. Phone: (301) 468-0696.

2ND WORLD CONGRESS ON PAIN AND ANXIETY CONTROL IN DENTISTRY, New Delhi. India. November 27-29. 1979. Contact: Dr. P. Virapin, 15 avenue de Maurin, 3400 Montpellier, France.

1980

NINTH SAO PAULO ODONTOLOGY CONGRESS, 15th Brazilian Odontology Congress, 12th Latin American Seminar of Odontology, São Paulo, Brazil. January 19-26, 1980. Contact: Secretary, São Paulo Dental Association, Rua Humaita, 389, P.O. Box 2523, São Paulo, Brazil.

FIRST INTERNATIONAL DENTAL CONFERENCE, Bombay, India, January 20-24, 1980. Contact: G.B. Shankwalker, Government Dental College and Hospital, Bombay 400001. India or Jangoo D. Kapadia, Sunkersett Mansion, Nan's Chowk, Bombay 400 007, India.

XVII CONGRESS OF THE FEDERACIÓN ODONTOLÓGICA DE CENTRO AMÊRICA Y PANAMÁ (FOCAP), City of Panama, Republic of Panama. January 21-25, 1980. Contact: Dr. Hernán de J. Ramos M., Apartado Postal 6677, Panamá 5, República de Panamá.

EAST COAST DISTRICT DENTAL SOCIETY, Miami Winter Meeting, Fontainebleau Hilton, Miami Beach, Florida, February 1-3, 1980. Contact: Barbara Sims, Executive Director, East Coast District Dental Society, 420 South Dixie Highway, 2-E, Coral Gables, FL 33146, U.S.A.

AUSTRALIAN DENTAL ASSOCIATION CONVENTION, Hobart, Australia, February 16-21, 1980. Contact: H. Hammer, 130 New Town Rd., New Town, Tas 7008, Australia.

VIRGIN ISLANDS DENTAL ASSOCIATION Winter Meeting, St. Thomas,

ADA meeting to look at radiology

The scientific sessions of the 120th Annual Meeting of the American Dental Association, "Dentistry's Pride — Service to the Public," will be highlighted by two, half-day seminars on dental radiology and an essay program on fixed prosthodontics.

The ADA meeting is scheduled for October 21 to 25 in Dallas, Texas.

The question, "is there really a radiation risk in dentistry" will be discussed during the first panel session. "This program will develop knowledge about known effects of low-level radiation exposure on the human population and considerations of somatic effects in the oral areas from direct exposure of oral structures in dental patients," reported Dr. Julian Gibbs of Nashville, Tennessee, chairman of the Section on Dental Radiology.

Speakers will also demonstrate that the understanding of low-level and direct radiation exposure effects are a necessary component in patient selection for diagnostic radiology. That selection will also be described, said Dr. Gibbs.

Experts participating in the program include Dr. James Miller of Rockville, Maryland, who will discuss exposures to patients and dentists; Dr. Allan Reiskin of Farmington, Connecticut, whose topic is over-exposed and under-developed X-rays; and Dr. Robert Goepp of Chicago, who will look at the dentists' role in population exposure.

"Advances in dental radiology," will be reviewed during the second session.

ANNOUNCEMENTS AVIS

U.S. Virgin Islands. February 25-March 2, 1980. Contact: Virgin Islands Dental Association, c/o Travel Services, P.O. Box 1691, St. Thomas, U.S. Virgin Islands 00801.

EIGHTH AUSTRALIAN ORTHODONTIC CONGRESS, Perth, Australia. March 23-29, 1980. Contact: Hon. Secretary, Australian Society of Orthodontists, 179 St. George's Tce. Perth, W.A. 6000, Australia.

ONTARIO DENTAL ASSOCIATION 113th Annual Spring Meeting, The Sheraton Centre, Toronto, Ontario, April 27-30, 1980. Contact: Mrs. W.C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P1.

BRITISH COLUMBIA COLLEGE OF DENTAL SURGEONS 1980 Convention, Hyatt Regency Hotel, Vancouver, May 27-31, 1980. For further information, please contact: Venue West Ltd., 1704 — 1200 Alberni Street, Vancouver, B.C. V6E 1A6, phone: (604) 681-5226.

SCHWEIZERISCHE ZAHNÄRZTE-GESELLSCHAFT (SSO), Interlaken, Switzerland, May, 1980. Contact: Franz Plattner, Chefredaktor des Bulletins, Ottoplatz 21, 7000 Chur, Switzerland.

BRITISH DENTAL ASSOCIATION CENTENARY MEETING, London, England, July 10-11, 1980. Contact: R.B. Allen, secretary, British Dental Association, 64 Wimpole Street, London W1M 8A1, England.

NEW ZEALAND DENTAL ASSOCIATION JUBILEE CONFERENCE 1905-1980, Dunedin, New Zealand, August 25-29, 1980. Contact: The Conference Secretary, P.O. Box 647, Dunedin, New Zealand.

FÉDÉRATION DENTAIRE INTERNATIONALE, International Dental Show. Hamburg, Germany. August 25-September 7, 1980. Contact: M. Jean-Pierre Schweizer, sales manager. Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 309, Toronto, Ont., Can., M5H 1L9.

FÉDÉRATION DENTAIRE INTERNATIONALE, 68th Annual World Dental Congress, Hamburg, Germany, September 2-7, 1980. Contact: Dr. R. Braun, Bundesverband der Deutschen Zahnärzte, Universita-isstrasse 73, 5000 Koln 41, Germany.

THIRD NATIONAL CONVENTION AND III INTERNATIONAL CONFERENCE OF ORAL HEALTH, Lima, Peru, October 1-4, 1980. Contact: Dr. Gilberto Dominguez, Av. Benavides 264-902, Lima 18, Peru, South America.

1981 —

Fédération Dentaire Internationale, **69TH ANNUAL WORLD DENTAL CONGRESS,** Rio de Janeiro, Brazil, September 5-9, 1981.

Fédération Dentaire Internationale. **70TH ANNUAL WORLD DENTAL CONGRESS,** Vienna, Austria, October 11-16, 1982.

Fédération Dentaire Internationale, **71ST ANNUAL WORLD DENTAL CONGRESS,** Tokyo, Japan, October 1983.

Fédération Dentaire Internationale **72ND ANNUAL WORLD DENTAL CONGRESS,** Helsinki, Finland, August/September, 1984.

Announcements are placed free of charge in the Journal of the Canadian Dental Association. Send Announcements to: CDA Journal, 1815 Alta Vista Drive, Ottawa, Ont., Canada K1G 3Y2. Only written notices are accepted for publication.

ICOB schedules Tokyo meeeting in 1980

In 1980 the Eighth International Conference on Oral Biology (ICOB) will be held in Tokyo, Japan. Its theme will be "Oral Disease Prevention — Its implications and applications." A study tour program of Japan, China and Thailand is being arranged in conjunction with the Conference, June 1 to 3, 1980.

A number of aspects of prevention of dental disease will be examined including the latest news on preventive methods and principles and consideration of the results of the increased emphasis on prevention. Questions to be considered include "What effect has the considerable improvement in the dental health of children had upon the dental condition of adults?"; "What results have been obtained in those countries where a nationwide cost policy has been carried out?"; and "What consequences will prevention have on the future field of activity and on the circumstances of dentists?"

For further information about the ICOB Conference, contact Dr George Beagrie, University of British Columbia. Arrangements for the extended tour of China, Thailand and Japan can be made through Conference Travel in Toronto.

Les enfants nés d'une mère fumeuse risquent beaucoup plus les décès au bas âge. Pourtant, 2/3 des futures mères continuent de fumer. De façon générale, le Dr. Gusberg du Mount Sinai School of Medecine, estime que les médecins ne consacrent pas assez de temps et d'importance à expliquer la nocivité du tabac. *(Med. Post. p. 58)*

Women in dentistry

At the end of 1977, less than five per cent of Canada's 10,000 practicing dentists were women. Just one year later, close to 20 per cent of the freshman class in the majority of Canada's dental schools were women.

News from south of the border indicates the same trend in many of the United States faculties of dentistry. While currently less than two per cent of American dentists are women at New York University College of Dentistry, for example, approximately 20 per cent of first and second year classes are women students.

In Scandanavian countries, statistics show that up to 70 per cent of dentists are women.

MARKETPLACE

OFFICES AND PRACTICES

BRITISH COLUMBIA — Harrison Hot Springs. Beautiful functional office with established preventive philosophy and more than average crown and bridge performed. Opportunity to buy practice, home, land. Office is in a bungalow in this beautiful resort town with a drawing area of 3,000 — 4,000. Only dental office in town. Realistic, fair purchase price. Contact: Karjon Management, 7300 Westminster Highway, Richmond, B.C. V6X 1A1. Phone: (604) 278-5426.

BRITISH COLUMBIA — Revelstoke. Lucrative, preventive family practice for sale/lease; nestled in the scenic Columbia River Valley of eastern British Columbia. Modern, efficient Cox floor plan suitable for one or two dentists with room for expansion. Excellent financial opportunity in thriving environment with unlimited recreation. Phone collect: (604) 837-5149.

BRITISH COLUMBIA — Southern Interior. Large practice for sale with two associates (one full time, one part time), hygienist, etc. Grossing in area of $450,000 per year with owner take home $170,000 on a 3 1/2 day week, nine months a year. Only good management and financially minded dentists need apply. Present owner wishes to retire at age 40. Excellent terms to right party. Also, an excellent house to be considered. This is an opportunity of a lifetime. Are you wasting your time and energy trying to build a practice? Wasted time is costing you valuable income. Reply to CDA Box Number 1915.

ALBERTA — Calgary. Health reasons force sale of well-established general practice in prestigeous downtown professional building. Two operatories, dark room, lab. etc. Excellent practice for ambitious individual. Reply to CDA Box Number 1923.

ALBERTA — Calgary. Practice for sale in desirable south Calgary. Good quality, booming area. Very little equity required; take over lease on modern one-year-old office and equipment. Owner leaving because of health. Reply to CDA Box Number 1921.

ALBERTA — Edmonton. Central financial district, excellent opportunity to continue existing busy practice in very desirable area. Ten year practice, six fully furnished operatories, hygienist, ten year lease, equipment, lease-hold improvements — $120,000. Contact: #206, 10807 Castle Downs Road, Edmonton, Alta. T5X 3N7.

ALBERTA — Red Deer. Fully modern active practice for sale. Contact: T. C. Hood, 52 Brown Ave., Red Deer, Alta. T4R 1K4. Phone: (403) 347-5926 or 346-3344.

SASKATCHEWAN — Saskatoon. Long established practice for sale in Saskatoon's most centrally located office building. Two fully equipped operatories. Impending retirement, adjustable possession date. Price reasonable and terms are negotiable. Contact: Dr. B.J. Wall, 510 Canada Building, Saskatoon, Sask. S7K 0B3, or phone: (306) 244-7606.

MANITOBA — Swan River. Dental Practice for sale or lease in the hub of approximately fifteen towns and villages in Swan River Valley. One other dental office in the Valley consisting of two dentists recently established. Dental practice well established (24 years) with exceptionally high patient load. Office consists of five one-chair operatories and one two-chair operatory. Inquiries regarding leasing or purchase may be made to: Dr. F. Matthews, Swan River, Man. R0L 1Z0, phone: (204) 734-2022 or Dr. L.F. Matthews, 14 Wesson Bay, Regina, Sask. S4S 6J5, phone: (306) 586-8329.

ONTARIO — East Mississauga location. For sale: Presently medical doctor's home plus offices. Ideally suited for dental practice in developing area. Call: Mr. Rohan (416) 275-0400. Cahill Real Estate Ltd. Realtor.

ONTARIO — Hawkesbury. Space for rent in newly constructed commercial centre on Main St. in Hawkesbury. Four stores fronting Main St. and twelve units in the rear at street level through an eight-foot arcade corridor. Available in areas of 600 sq. ft. or more. Accessible from street or entrance from parking lot for 160 cars. Dentists urgently required in this area. Apply to: Assaly Realties of Hawkesbury, 129 Main St. E., Hawkesbury, Ont. Phone: (613) 632-2719.

ONTARIO — Toronto. Dental Laboratory For Sale. Metropolitan Toronto, large, modern well-equipped, established thirty years ago, sales approximately $700,000, owner retiring. Only serious offers considered. Reply to CDA Box Number 1922.

QUEBEC — Montreal. Modern, fully equipped, air-conditioned, recently opened dental office. One operatory but very spacious, along with building for sale in small shopping centre. Please write or telephone: (514) 363-2654.

ASSOCIATESHIP AVAILABLE

NORTHWEST TERRITORIES — Yellowknife. Experienced associate required for progressive preventive-oriented practice, to join three dentists and two hygienists. Fully trained staff, Panoramic radiography, inhalation and intravenous sedation. Excellent remuneration for those prepared to work to the highest clinical and ethical standards. Reply to: Dr. I.M. Partridge, Box 1140, Yellowknife, N.W.T. Phone: (403) 873-2450.

SASKATCHEWAN — Saskatoon. Busy downtown group dental practice requires an associate. This well established practice can assure a good income from the outset. All replies strictly confidential. For further details reply to CDA Box Number 1918.

NEW BRUNSWICK — Sussex. Health Centre Dental Clinic. Associate required for busy, well-established, modern practice in fully equipped dental clinic. Four operatories. Excellent opportunity to establish group practice, complete with hospital facilities and privileges. Contact: Dr. Stephen D. Rideout, R.R. #2, Sussex, N.B. E0E 1P0.

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BRITISH COLUMBIA — Central Interior. Associate with view to partner ship. Rapidly expanding area recently depleted of three dentists. Practic long established in modern medical-dental building. Hospital privilege available. Stable economy and great recreational opportunities. Wha more can you want if you wish to practise out of the cities. Contact: D P. Collard, Box 1322, Vanderhoof, B.C. V0J 3A0, phone: (604) 567-2656

BRITISH COLUMBIA — Kelowna. Full-time hygienist wanted for moder preventive-oriented dental practice in the sunny Okanagan. Phone: (604 762-2215, or write: Dr. D. Edstrom, #29, 1710 Ellis St., Kelowna, B.C V1Y 2B5.

BRITISH COLUMBIA — Penticton. Dental hygienist required. Full-tim position available in highly preventive and people oriented practice Excellent remuneration; four day week, six weeks holiday with pay; op portunities for postgraduate courses. To work with young, progressiv dentist, modern equipment. Position open immediately. Phone: (604 492-0593 or 493-0540, or write: Dr. R.R. Bentham, 195 — 333 Marti Street, Penticton, B.C. V2A 5K7.

ALBERTA — Grande Prairie. Orthodontist urgently required for a rapi growing city of 20,000 and an area of 50,000. Instant practice. Plenty o work for two orthodontists. City is basically a young population with large number under third parties. City has all amenities such as raque ball courts, golf course, daily jet service, etc. Reply to CDA Box Numbe 1924.

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Qualifications — A recognized university diploma in dental hygiene or equivalent and preferably some experience subsequent to graduation. May be required to drive own car on expenses, or a government car.

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Province of British Columbia Public Service Commission

Positions are open to both men and women. Obtain applications from, and return to, address below.

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education and prevention. Salary: based on training and experience and is negotiable. Attractive comprehensive benefit package. Please send resume to: Executive Director, Community Health Center, 3765 Sherwood Drive, Regina, Sask. S4R 4A9.

SASKATCHEWAN — The Department of Northern Saskatchewan's Children's Dental Program requires a dentist for Ile a la Crosse, situated 180 miles northwest of Prince Albert. The program, which includes treatment, prevention and education is primarily aimed toward treating northern children up to 16 years of age. The program is a team approach utilizing dentists, dental nurses and dental assistants. The incumbent will be responsible for examination, diagnosis, treatment planning and supervision of three dental nurses and four assistants. The position requires frequent travel by bushplane and car through forested lake regions to five communities within a 100 mile radius of Ile a la Crosse. Applicants will have university graduation from an accredited school of dentistry and be eligible for licensure with the College of Dental Surgeons of Saskatchewan. In addition, the incumbent will have a special interest in public health dentistry and community development, a genuine interest in children, and sensitivity toward cross-cultural differences. Salary $31,212 — $38,856, $34,056 — $42,420 (with specialization). For further information contact: Department of Northern Saskatchewan, Administrator, Children's Dental Program, Box 5000, La Ronge, Sask. S0J 1L0. Competition: 613020-9-529 Closing: A.S1A.P. Forward your application forms and/or resumes quoting position, department and competition number to: The Saskatchewan Public Service Commission, 1820 Albert Street, Regina, Sask. S4P 3V7.

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas of Northern Ontario. An incentive grant of $18,000, payable over four years, or a guaranteed net professional income of $28,000 per annum is offered. A number of salaried positions are available on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 15 Overlea Blvd., Toronto, Ont. M4H 1A9. Telephone: (416) 965-5036.

ONTARIO — Endodontist needed. Fully equipped office, ready to go. No cash outlay necessary. Reply in confidence to CDA Box Number 1920.

ONTARIO — Toronto. Paedodontist required for busy Paedodontic practice in north Metropolitan Toronto. Opportunities available for partnership. Position available immediately. Applicant must be certified to practise in Ontario. Reply in strict confidence to CDA Box Number 1912.

QUÉBEC — Anjou. Dentiste demandé, temps partiel pratique réservée aux enfants. Répondez à: Dr. Pierre Boisclair, Centre Dentaire Anjou, Ste. 229, 8001 Boul. Les Galeries D'Anjou, Anjou, P.Q. H1M 1W9. Téléphone: (514) 353-6220.

QUÉBEC — Université Laval. A full-time academic position in prosthetics dentistry is available. The successful applicant must hold a D.D.S. and M.Sc. (or equivalent) with major in partial and minor in complete removable prosthesis. Duties will include preclinical and clinical teaching in French at the undergraduate level. Any other full-time academic position activities (including research), may be attributed. Candidates must be eligible for licensure by the Order of Dentists of Québec and be prepared to fulfil the French language requirements enabling him/her to teach clinically and enjoy consulting and private practice privileges. A temporary licence would be granted in the interim. Salary and rank are

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Duties: The successful candidate will plan, organize and implement a dental health and treatment program for Native people in northwestern B.C. using portable dental equipment and operating field dental clinics and will supervise Dental Therapists in settlements throughout the zone.

QUALIFICATIONS: Applicants must possess a current licence to practise dentistry in a province of Canada; and experience in providing direction to subordinate staff. Knowledge of English is essential.

Additional job information is available by writing to the address below.

Toute information relative à ce concours est disponible en français et peut être obtenue en écrivant à l'adresse suivante.

Send your application form and/or resumé, quoting Reference Number 79-V-HWC-69, before October 15, 1979, to: Carol Pinhey, Regional Staffing Officer, Public Service Commission of Canada, P.O. 11120 Royal Centre, 500 — 1055 West Georgia Street, Vancouver, B.C. V6E 3L4.

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commensurate with qualifications and experience and are based on collective agreement. Please send letter of application, curriculum vitae and three letters of recommendation before November 15 to: Dr. Laurent Dufour, Associate director, École de médecine dentaire, Université Laval, Québec, G1K 7P4.

NEWFOUNDLAND — St. John's. Dental hygienist wanted for busy preventive oriented practice. Hygienist's operatory complete with new equipment. Central location. Good working conditions. Apply in writing or call collect to: Dr. R.P. Quigley, 257 Le Marchant Road, St. John's, Nfld. Phone: (709) 579-2115 (office) or 226-6247 (Res.)

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Position available immediately.

Send statement of qualifications and interests along with curriculum vitae to:

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Qualifications: Registered Dental Technician. Grade Twelve. At least two years experience preferred.

UNIVERSITY OF QUEENSLAND

CHAIR OF ORAL SURGERY

DEPARTMENT OF DENTISTRY

The University invites applications for a new Chair of Oral Surgery within the Department of Dentistry.

Applicants must hold a primary degree in Dentistry and specialist qualifications in Oral Surgery, both registrable in Queensland. A higher academic qualification and a medical qualification registrable in Queensland would also be desirable.

Applicants should have had teaching experience in Oral Surgery at both undergraduate and postgraduate levels. They should have substantial clinical experience in the field of Oral Surgery and a strong research record. The appointee will be required to be registered as a dentist and as a specialist oral surgeon in Queensland.

The present salary for a Professor is $A33,061 per annum, plus a clinical loading of $A2,500 per annum. The University provides prescribed travelling and removal expenses, superannuation, study leave and housing assistance.

Additional information and application forms are obtainable from the Staff Officer, University of Queensland, St. Lucia, Brisbane, 4967, Australia, with whom applications close on 30th September, 1979. Ref. No. 27179.

OPPORTUNITIES WANTED

BRITISH COLUMBIA — Dentist wishes to purchase records of retiring dentist in Vancouver area. Please Reply to CDA Box Number 1916.

EDUCATIONAL COURSES

CALIFORNIA — Applications are being accepted for advanced training in craniofacial biology, endodontics, pedodontics, periodontics, prosthodontics, oral pathology, oral and maxillofacial surgery and orthodontics. Each clinical specialty program is ADA accredited, leads to a certificate of study, and prepares the student for board examinations. There is also a general practice residency program which provides a certificate of completion. These programs are of 24 months duration with the exception of oral pathology and oral surgery (3 years each) and general practice residency (1 year). Each program begins July 1. Complete applications and records are due November 1, except for general practice residency, oral pathology and prosthodontics which are due December 31. The hospital residency program (i.e. general practice residency, pedodontics, oral pathology and oral surgery) provide monthly stipends. The Graduate Program in craniofacial biology includes M.S. and Ph.D. training as well as Postdoctoral Fellowship training. Craniofacial biology is concerned with the evolution, growth and diversification, structure and function or oral-facial-cranial tissues related to the etiology, pathogenesis and mechanisms of numerous diseases and malformations. Tuition and monthly stipend awards are provided through a National Research Service Training Program from the National Institutes of Health. For additional information please contact: The University of Southern California School of Dentistry, Office of Dental Admissions — Advanced Programs P.O. Box 77951, Los Angeles, CA. 90007.

MEETINGS

VIRGIN ISLANDS DENTAL ASSOCIATION WINTER MEETING, February 25 — March 2, 1980. Guest speakers: Dr. Burton Press — Practice Administration; Dr. Morton Amsterdam — Perio Prosthesis; Dr. Lloyd Miller — Crown and Bridge Esthetics; Dr. Paul Chapnich — Oral Surgery; Mr. Wilson Lau — Ladies' Program. (Only U.S. Currency accepted). For information, write: Virgin Islands Dental Association, c/o Travel Services Inc., P.O. Box 1691, St. Thomas, U.S. Virgin Islands 00801.

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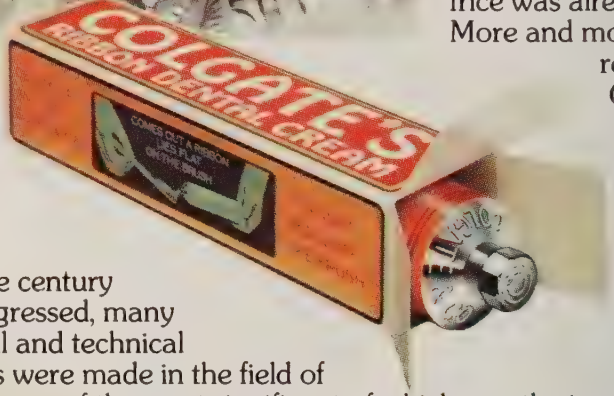
We've come a long way togethe

If you were practising dentistry 100 years ago, you probably had another trade as well—anything from blacksmith to travelling salesman. Because you couldn't make a living just as a dentist.

But dentistry was changing; and if you were serious about your work you were beginning to recognize the merits of preventive dent ...which meant teaching the public that dentistry was more than "pulling the tooth that hurts". It was about this time that the Colgate company introduced Colgate toothpaste.

As people learned that keeping teeth healthy required day-to-da care, they learned to care for them with Colgate.

By the turn of the centur most dentists were no l common tradesmen, but edu cated professionals; and the Canadian Dental Associatio was founded so they could s their skill, their knowledge a their concern for the integrit the profession. Although mo and more toothpastes were being introduced, Colgate's reputation as an effective de frice was already well-establi More and more dentists wer recommending Colgate to thei patients.



As the century progressed, many biological and technical advances were made in the field of dentistry, one of the most significant of which was the increasing use of fluoride to reduce the incidence of cavities. The first fluorides to be used b dentists were simple in composition: sodium fluoride and stannous fluoric But the Colgate company was developing its own improved fluoride, MFP (sodium monofluorophosphate). Research showed that this fluoride reacts with the tooth enamel to form fluorapatite*, which makes the tooth more resistant to decay. Tests also showed that staining of teeth, which ca be a problem with stannous fluoride, isn't a problem with MFP. Reformula Colgate with MFP was so effective that it was one of the first toothpastes to receive official recognition from the Canadian Dental Association†. And Colgate** with MFP is still one of the most effective toothpastes in t fight against cavities today.

*Ericsson, Y., The mechanism of the monofluorophosphate action on hydroxy apatite and dental enamel, Acta Odont, Scand., **21**, 341-358 (1963).

† Colgate Toothpaste contains sodium monofluorophosphate, which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care.

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Canadian Dental Association

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Vol.45 No.10

Canadian Dental Association Journal

October 1979

de l'Association Dentaire Canadienne

Octobre 1979

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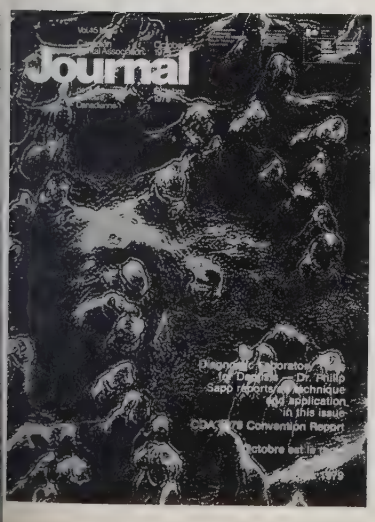

This month's cover photo, taken by Dr. John Hardie, Edmonton, Alberta, shows elevations on the basal surface of the epidermis magnified X350. See page 547.

In the News

507 **CDA Executive**
Dr. Clyde Covit, a general practitioner from Montreal, Quebec is the new president of the Canadian Dental Association, succeeding Dr. Rod Moran. Dr. Gilbert Utas is the new president-elect.

Dr. Clyde Covit

508 **Concern expressed for research funds**
More federal money must be provided for dental research — CDA.

509 **CDA Retirement Savings Plan**

516 **Board of Governors**
The Board agreed to try a North American Chapter of FDI, approved an orthodontic endorsement form and will distribute the CDA dental plan Manual.

518 **Unified profession**
Only a unified profession will be able to meet future demands, interruptions and interference — Dr. Rod Moran.

Letters

499 **In-office mercury test**
Dr. Ralph Barolet of Laval University who is chairman of CDA's Council on Dental Materials and Devices, offers help to an Ontario dentist. How can his office be checked for mercury contamination? Dr. Barolet has some suggestions.

530 **Book Reviews**
The Journal introduces a new Department of Book Reviews. Take a look at recently published texts.

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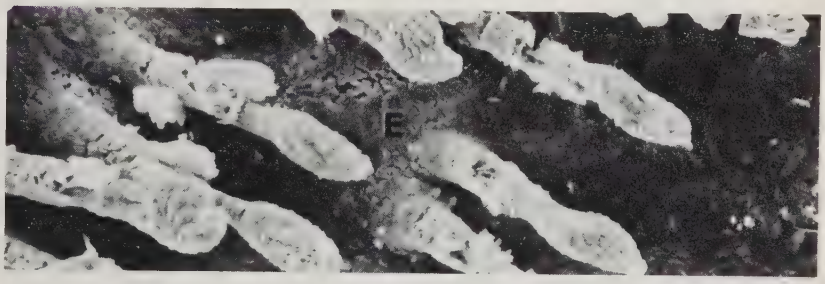
556 Announcements
557 Obituaries
558 Marketplace
559 Advertisers' Index

Scientific

533 Diagnostic Laboratory Tests for Dentists — Sapp. The possibility of a mistaken diagnosis based on clinical judgement alone is always present. Laboratory tests are useful. They can be used either to establish the diagnosis or to confirm a suspected one.

547 Scanning Electron Microscopy of the Dermal — Epidermal Interface in Chemical Carcinogenesis — Hardie.
Dr. John Hardie received the 1979 Canadian Dental Research Foundation Award for this description of the morphologic alterations of the basal surface of carcinogen treated epidermis revealed by scanning electron microscopy.

545 **Instructions for Contributors**



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Lettres

503 **Contaminé par le mercure**
Dr Ralph Barolet professeur, université Laval et président, Conseil des matériaux et dispositifs dentaires, aide un dentiste de l'Ontario.

530 **Nouvelles Publications**
Une nouvelle rubrique a été ajoutée à notre Journal. On y donnera un compte rendu des derniers ouvrages parus ainsi qu'une appréciation critique.

531 Éducation dentaire permanente
556 Avis
557 Nécrologies
558 Petites annonces

Scientific

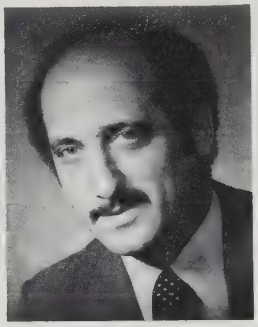
533 Diagnostic Laboratory Tests for Dentists — SAPP.
Il est possible qu'un diagnostic qui repose uniquement sur un examen clinique soit faux. C'est pourquoi les tests effectués en laboratoire sont nécessaires. Ils aident à diagnostiquer les maladies ou à confirmer celles que l'on soupçonne.

547 Scanning Electron Microscopy of the Dermal-Epidermal Interface in Chemical Carcinogenesis
Le Dr John Hardie a reçu le prix de la Fondation canadienne de la recherche dentaire pour cet article. Il y décrit les transformations morphologiques que la couche basale de l'épiderme subit sous l'effet d'éléments carcinogènes. Ses observations ont été faites à l'aide d'un appareil microscopique à sonde electronique.

546 **Guide à l'intention des collaborateurs**

Les Actualités

511 **l'Exécutif de l'ADC**
Le président de l'Association Dentaire Canadienne, le Dr Clyde Covit, dentiste montréalais, a été investi de sa nouvelle fonction lors du Congrès de l'ADC. Le Dr Gilbert Utas est le président designé et le Dr Rod Moran est le président sortant.



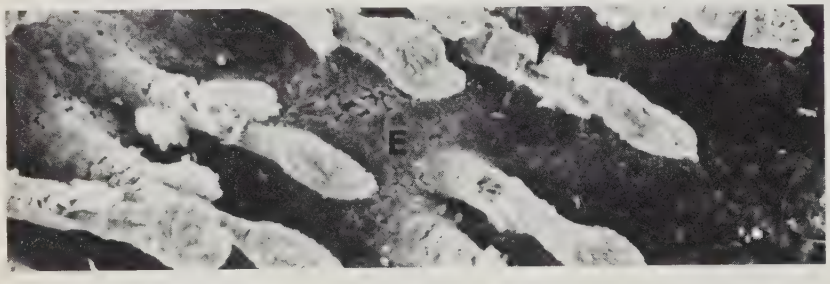
Dr Clyde Covit

511 **Régime d'épargne — retraite de l'ADC**

512 **Le prix de la FCRD**
Cette année, le prix de la FCRC a été attribué au Dr John Hardie.

513 **Deux projets de recherches**
Un dentiste australien participe à deux projets de recherches expérimentales sur la carie dentaire.

525 **Conseil d'administration**
Le Conseil a débattu le mérite d'instituer un chapitre nord-américain de la FDI et a approuvé un formulaire standard de sanction orthodontique.



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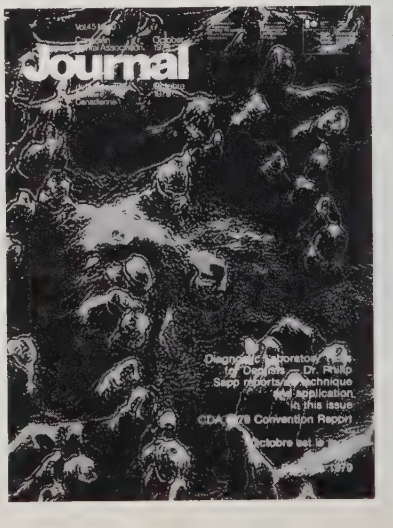

La photo en page couverture a été prise par le Dr John Hardie d'Edmonton, Alberta. Voir à la page 547.

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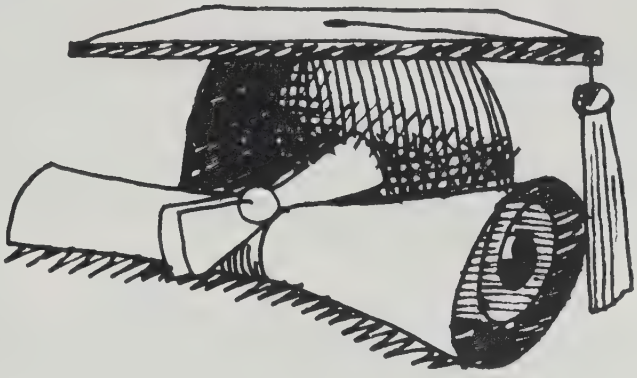

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In-Office Mercury Test

Editor's Note: A letter from an Ontario dentist was received recently by the Journal. The dentist expressed an interest in having his office tested for mercury contamination but did not know where to go for assistance.

He said he had approached local health authorities but they were unable to help him out. Neither could labour safety people tell him how to determine the mercury levels.

His letter was forwarded to Dr. Ralph Barolet of Laval University and chairman of the Canadian Dental Association Council on Dental Materials and Devices, for reply.

Dr. Barolet's letter follows for the information of other Canadian dentists.

Dr. Ralph Barolet

I am surprised that the local health authorities cannot test your office environment for mercury contamination. They must not have the necessary equipment.

I know for a fact that at the University of Toronto, department of biomaterials headed by Dr. D.C. Smith (who is unfortunately on a sabbatical leave), the necessary device is available. Perhaps if you called Dr. Smith's office, you might be able to get in touch with someone who could make the necessary equipment available to you for a short period of time.

A simple way to test your office environment for the presence of mercury vapours is by using a Williams Detecter. This should be available from most dental dealers. It is marketed by Williams Gold Refining Co. It is simply a sheet of filter paper which is treated with palladium chloride. The palladium chloride, in contact with mercury vapour will turn grey or brown. You simply hang the Detector over the area where you manipulate mercury. After a few days, check the color of the disc. It should be as white as the surrounding paper. I check the color by comparing it to an unused Detecter. This will point out the presence of mercury. If you do have mercury present, then it is incumbent on you to get rid of it.

Mercury falls on the floor and ends up in the cracks of a tiled floor or in a carpet. There are ways to neutralize the mercury. Powdered sulphur will neutralize the mercury. A product called HgX is also sold for this purpose. It is added to the wash water when the floors are cleaned.

Check your amalgam capsules for leakage. This can easily be done by wrapping scotch tape around the capsule at the joint. After trituration, examine the scotch tape (sticky side) for the presence of mercury. If there is any present, you will see a small line of droplets that are retained on the paper.

I hope that these few comments are helpful to you. Please do not hesitate to call on me if you need any additional information.

Ralph Y. Barolet, DDS, MScD
Chairman,
Council on Dental Materials
and Devices,
Canadian Dental Association

The Journal of the Canadian Dental Association is pleased to make this space available for "Letters to the Editor". All letters must be signed and the editor reserves the right to edit communications according to space requirements.

We've come a long way together

If you were practising dentistry 100 years ago, you probably had another trade as well—anything from blacksmith to travelling salesman. Because you couldn't make a living just as a dentist.

But dentistry was changing; and if you were serious about your work you were beginning to recognize the merits of preventive dentistry ...which meant teaching the public that dentistry was more than "pulling the tooth that hurts". It was about this time that the Colgate company introduced Colgate toothpaste.

As people learned that keeping teeth healthy required day-to-day care, they learned to care for them with Colgate.

By the turn of the century most dentists were no longe common tradesmen, but educated professionals; and the Canadian Dental Association was founded so they could shar their skill, their knowledge and their concern for the integrity of the profession. Although more and more toothpastes were nov being introduced, Colgate's reputation as an effective dentifrice was already well-establishe More and more dentists were recommending Colgate to their patients.

As the century progressed, many biological and technical advances were made in the field of dentistry, one of the most significant of which was the increasing use of fluoride to reduce the incidence of cavities. The first fluorides to be used by dentists were simple in composition: sodium fluoride and stannous fluoride. But the Colgate company was developing its own improved fluoride, MFP (sodium monofluorophosphate). Research showed that this fluoride reacts with the tooth enamel to form fluorapatite*, which makes the tooth more resistant to decay. Tests also showed that staining of teeth, which can be a problem with stannous fluoride, isn't a problem with MFP. Reformulatec Colgate with MFP was so effective that it was one of the first toothpastes to receive official recognition from the Canadian Dental Association†. And Colgate** with MFP is still one of the most effective toothpastes in the fight against cavities today.

*Ericsson, Y., The mechanism of the monofluorophosphate action on hydroxy apatite and dental enamel, Acta Odont, Scand., **21,** 341-358 (1963).

† Colgate Toothpaste contains sodium monofluorophosphate, which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care.

CANADIAN DENTAL ASSOCIATION RECOGNIZED

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The Canadian public and members of the health professions are familiar with the Canadian Cancer Society because of its high-profile fund raising and educational activities. These are efforts in which many of our profession have participated, especially in fund raising. The National Cancer Institute of Canada is another active organization which deserves to be better known throughout the country. Its main activity is in cancer research.

The relationship between the Canadian Cancer Society and the National Cancer Institute is an amicable one in which the NCI acts as the sole agent for the distribution of funds raised by the Cancer Society for the support of cancer research and research personnel. The NCI makes no public solicitation for funds and this is one reason for its relative obscurity.

The NCI awards considerable sums of money to six research units and institutes, several research groups, and to individual investigators. The units and institutes are concerned with such projects as epidemiology of cancer, clinical trials, chemotherapy and the role of viruses in carcinogenesis. It is not always appreciated that the Institute supports clinical cancer research as well as basic research. A few Canadian dental researchers have received grants in support of their work but there is certainly room for more such activity.

The total sum spent by the NCI for cancer research and related activities in 1978 was $10,416, 452 and over $11 million is budgeted for this year.

The NCI also has an active program for the financial support of trainees in cancer research. Over $200,000, which is included in the above figure, was spent in 1978 on this program.

The Canadian Tumour Reference Centre is another activity of the NCI. Pathologists can send difficult cases to the Centre to obtain the opinions of the staff and of panels comprised of pathologists throughout Canada who have special expertise in the pathology of various parts of the body. A number of Canadian oral pathologists serve on the panel dealing with tumours of the oral cavity, jaws and salivary glands. The material gathered at the CTRC over the years is also used for research and several papers concerning tumours of the oral regions have been published from this source. Finally, the CTRC produces study sets on tumours of various anatomical areas. One of the most recent was that on odontogenic tumours compiled by the Division of Oral Pathology of the University of Western Ontario.

A relatively recent activity of the NCI is the production of educational material and position papers on various aspects of cancer for health professionals. An educational program on cancer of the colon and rectum is planned and policy statements are prepared on such topics as various unproven remedies for cancer and radiation-induced cancer of the thyroid.

Almost the sole source of income of the NCI is the money raised by the Canadian Cancer Society. The aim of this editorial is to inform you how that money is spent and about the work that the National Cancer Institute of Canada is performing quietly behind the scenes. Our profession, with its interest in cancer in general and specifically in the early detection of oral cancer, needs to be aware of the activities of the Institute and perhaps to participate more fully in it.

David G. Gardner, DDS, MSD,
Representative of the Canadian
Dental Association to the National
Cancer Institute of Canada

Éditorial

L'INSTITUT DU CANCER DU CANADA

Le grand public et les membres des différentes professions de la santé connaissent bien la Société canadienne du cancer; ses campagnes de solicitation et ses efforts d'éucation publique la mettent constamment en évidence. Nombreux, d'ailleurs, sont les professionnels qui lui ont apporté leur appui, surtout dans ses campagnes de solicitation de fonds. Quant à l'Institut national du cancer du Canada, c'est un organisme dynamique qui mérite d'être mieux connu dans notre pays. Sa principale sphère d'activité est la recherche sur le cancer.

La Société canadienne du cancer et l'Institut national du cancer entretiennent des rapports cordiaux, caractérisés par le fait que l'INC est le seul agent responsable de la répartition des fonds recueillis par la Société du cancer pour le financement de la recherche sur le cancer et l'appui du personnel de chercheurs. Comme il ne mène lui-même aucune campagne publique de sollicitation de fonds, l'Institut est demeuré dans une obscurité relative.

L'INC octroie des sommes considérables à six centres et instituts de recherche de même qu'à de nombreux chercheurs qui travaillent soit en équipe, soit isolément. Les centres et les instituts se consacrent à des projets tels l'épidémiologie du cancer, les essais cliniques, la chimiothérapie et le rôle des virus dans la carcinogénèse. On ne se rend pas toujours compte que l'Institut apporte son appui à la recherche clinique sur le cancer aussi bien qu'à la recherche fondamentale. Quelques chercheurs canadiens en dentisterie ont bénéficié de subventions pour leurs travaux, mais des initiatives de ce genre devraient certes être plus nombreuses. En 1978, l'INC a consacré la somme globale de $10,416,452 à la recherche sur le cancer et à des activités connexes et son budget dépasse $11 millions cette année.

L'INC mène également un dynamique programme d'aide à la formation des chercheurs dans le domaine du cancer. En 1978, il lui a consacré plus de $200,000, à l'intérieur du budget susmentionné.

Le Centre canadien de référence sur les tumeurs est une autre initiative de l'INC. Les pathologistes peuvent envoyer leur cas difficiles au Centre pour obtenir l'opinion du personnel et de groupes d'experts composés de pathologistes de tous les coins du pays, dotés d'une spécialisation dans la pathologie des diverses parties du corps humain. Plusieurs spécialistes en pathologie buccale font partie du groupe s'occupant des tumeurs de la cavité buccale, des mâchoires et des glandes salivaires. La documentation accumulée au Centre sert également à la recherche et à la préparation d'exposés portant sur les tumeurs de la région buccale. Enfin, le Centre prépare des ensembles d'études sur les tumeurs affectant diverses régions anatomiques. L'exemple le plus récent portait sur les tumeurs odontogéniques, oeuvre de la Division de pathologie buccale de l'Université Western Ontario.

Depuis quelque temps, l'Institut national du cancer se consacre également à la réalisation de matériel éducatif et de prises de position sur divers aspects du cancer, à l'intention des professionnels de la santé. Il se propose de mener un programme d'éducation sur le cancer du côlon et du rectum, et des énoncés de politique sont en voie de préparation: ils traiteront de sujets comme les divers remèdes non éprouvés contre le cancer et le cancer de la thyroïde occasionné par les radiations.

L'Institut tire pratiquement tous ses revenus des sommes recueillies par la Société canadienne du cancer. Le présent éditorial vise donc à vous renseigner sur les façons dont cet argent est dépensé et sur le travail qu'exécute discrètement l'Institut national du cancer du Canada. En raison de son intérêt envers le cancer en général, et plus particulièrement envers la détection précoce du cancer de la bouche, notre profession doit être au courant du travail de l'Institut et peut-être y participer plus pleinement.

David G. Gardner, DDS, MSD,
Représentant de l'Association Dentaire Canadienne auprès de l'Institut national du cancer du Canada.

Contaminé par le mercure

Note de la rédaction: Nous avons reçu dernièrement un lettre d'un dentiste ontarien qui désirait déterminer si son bureau était contaminé par le mercure, mais qui n'avait pu obtenir d'aide malgré de nombreuses démarches.

Il s'était adressé en vain aux autorités locales en matière de santé. Les responsables de la sécurité industrielle n'avaient pu lui venir en aide non plus.

Nous avons donc transmis sa lettre au Dr Ralph Barolet de l'Université Laval, président du Conseil des matériaux dispositifs dentaires de l'Association Dentarie Canadienne. Voici sa réponse. D'autres dentistes canadiens la trouveront sans doute d'un grand intérêt.

"Je suis surpris que les autorités locales en matière de santé ne puissent faire les tests voulus pour déterminer si votre bureau est contaminé par le mercure. Ils sont sans doute dépourvus de l'appareillage nécessaire.

Je sais que le dispositif voulu est disponible au département des matériaux biologiques de l'Université de Toronto. Malheureusement pour vous, son directeur, le Dr D.C. Smith, est en congé sabbatique présentement. Néanmoins, vous pourrez peut-être obtenir d'un de ses collègues qu'on vous prête l'équipement nécessaire pendant une brève période.

Le détecteur Williams est un moyen peu compliqué de déceler la présence de vapeurs de mercure dans votre bureau. La plupart des fournisseurs de matériaux dentaires devraient l'avoir en stock. Ce dispositif est fabriqué par la firme Williams Gold Refining Co. Il consiste simplement en une feuille de papier filtre traité au chlorure de palladium. En présence de vapeurs de mercure, le papier devient gris ou brun. Vous n'avez qu'à suspendre le détecteur au-dessus de l'endroit où vous manipulez du mercure. Au bout de quelques jours, vérifiez la couleur du disque. Il devrait être aussi blanc que le papier qui l'entoure. Personnellement, j'en vérifie la couleur par une comparaison avec un détecteur non utilisé. Si la couleur indique la présence de mercure, c'est à vous de veiller à l'éliminer.

Habituellement, le mercure tombe sur le plancher et se loge dans les fissures du carrelage ou dans le tapis. Il y a des façons de le neutraliser. La poudre de soufre y arrivera, de même qu'un produit appelé HgX, en vente à cette fin. On l'ajoute à l'eau quand on lave le plancher.

Vérifier vos capsules d'amalgame pour y détecter les fuites possibles. Un moyen facile est d'entourer le joint d'un ruban adhésif transparent. Agitez la capsule, puis enlevez le ruban adhésif et examinez la face adhésive. S'il y a des fuites de mercure, vous y verrez une mince ligne de gouttelettes.

J'espère que ces quelques renseignements vous seront utiles. N'hésitez pas à faire appel à moi si vous avez besoin de précisions additionnelles."

Dr Ralph Barolet
président
Conseil des matériaux et
dispositifs dentaires
de l'A.D.C.

Année internationale de l'enfant . . .

À l'Association Dentaire Canadienne:

En cette Année internationale de l'Enfant, la carie dentaire demeure un mal coûteux et largement répandu. La fluoration des approvisionnements publics en eau est le moyen le plus efficace et le plus économique de combattre ce problème.

Depuis 34 ans, le Canada procède avec succès à la fluoration de l'eau; cependant, seulement 46 pour cent des Canadiens qui sont approvisionnés en eau par le système de distribution public profitent réellement des bienfaits de la fluoration.

Depuis bon nombre d'années, le Ministère estpersuadé que la fluoration de l'eau est une mesure sécuritaire et salutaire.

Je n'hésite donc aucunement à recommander aux autorités responsables de l'approvisionnement communautaire en eau au Canada de généraliser le plus possible l'application de cette mesure d'hygiène publique.

David Crombie
Ministre de la
Santé Nationale
et du Bien-être social

David Crombie

Le Journal de l'Association Dentaire Canadienne est heureux d'offrir cet espace aux lecteurs désireux d'envoyer des "Lettres à la rédaction". Toutes les lettres doivent être signées et la rédactrice en chef se réserve le droit de les raccourcir si le manque d'espace l'impose.

In the News

Dr. Barrickman awarded a framed certificate to Linda Teteruck, director of Student Affairs for the Canadian Dental Association. The certificate signified her election to Honorary Membership in SCADA.

CFB Borden dental school

The dental hygiene and dental assistant training programs at the Canadian Forces Dental Service School at Canadian Forces Base, Borden, have received accreditation by the Canadian Dental Association.

The programs were first accredited in 1973 but were up for review by the Council on Education this year.

The dental assistant training program was instituted in 1943 at the Toronto-based Canadian Dental Corps Training Centre.

The school now offers post graduate continuing education courses and is the centre for training all dental auxiliaries in the Canadian Forces. It is the only centre of its kind in the country.

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Dr. John Hardie wins CDRF Award

Oral biologist, Dr. John Hardie, is this year's winner of the Canadian Dental Research Foundation (CDRF) Award with his paper "Scanning Electron Microscopy of the Dermal-Epidermal Interface in Chemical Carcinogenesis."

Dr. Hardie is associate professor, Oral Pathology, with the Faculty of Dentistry at the University of Alberta in Edmonton.

This prestigious award is presented annually to a graduate or post graduate student for excellence in research work conducted in association with the dental faculty of a Canadian university. There are presently ten faculties of dentistry in Canada.

Entries are judged by three referees appointed by the Canadian Dental Association Council on Dental Materials and Devices.

Dr. Hardie received his Bachelor of Dental Science from Glasgow University, Scotland and a Master of Science from the University of Western Ontario where he also began his research training. His winning research work was conducted at U.W.O.

Dr. Hardie received a $500 cash prize from the Canadian Dental Association and a plaque. The CDRF trophy, presented to the Dean of the Faculty of Dentistry, will remain at the University of Western Ontario for one year. Dr. Hardie was also a guest at this year's Canadian Dental Association Convention in Quebec City where he was presented with his award.

Dr. John Hardie, right, and Dr. Ron Moran.

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Dr. Gilbert Utas named CDA president-elect

Dr. Gilbert Utas became president-elect of the Canadian Dental Association at the Association's Annual Convention in Quebec City September 9 to 12.

Dr. Utas, who graduated from the University of Alberta School of Dentistry in 1964, is in general practice in Grande Prairie, Alberta. Prior to becoming a dentist, Dr. Utas was a highschool teacher.

A member of CDA's Executive Council for two years, Dr. Utas has been a Governor of the Association since 1974. He is a past president of the Alberta Dental Association.

Born and educated in Alberta, Dr. Utas is a World War II veteran. He served in the navy as a wireless operator. He is a past master of the Masonic Lodge, past president of the Shriners and was formerly chairman of the School Board of Grande Prairie. Dr. Utas is presently a member of the Grande Prairie Chamber of Commerce.

The new president-elect of the Canadian Dental Association will hold office for one year. President of the Association is Dr. Clyde Covit of Montreal, Quebec and past president is Dr. Rod Moran of Toronto.

Dr. Utas is a member of the American Society of Clinical Hypnosis and the Pierre Fauchard Academy. He and his wife, Olive, have four children, two sons and two daughters.

Dr. Gilbert Utas.

Avis agreement

An agreement between the Canadian Dental Association and Avis-Rent-A-Car means that CDA members may take advantage of up to 30 per cent discounts on car rentals. Details of the agreement have been provided to provincial associations and a letter outlining the specifics of the arrangement has been mailed to all CDA members.

ADS aid plan

The Central Alberta Dental Society has established a mutual aid plan to make volunteer help available for dentists who become ill. Patterned after similar plans in operation in the United States and in the Toronto area, participating dentists volunteer a day away from their practices to work in the office of a dentist who can't work because of sickness. Volunteers are also available to work in the practices of dentists who die.

The volunteer program, ideally, continues until recovery or until arrangements can be made for a still active practice of a deceased dentist.

The steering committee investigating plans for the Central Alberta Dental Society is chaired by Dr. Cliff Tym. Enough volunteers are already available to make the plan work. The plan is not intended to replace disability insurance or loss-of-income insurance coverage.

Dr. Clyde Covit installed as president

Montreal dentist, Dr. Clyde Covit was installed as president of the Canadian Dental Association at CDA's Annual Convention in Quebec City, September 9 to 12.

CDA's new president-elect is Dr. Gilbert Utas of Grande Prairie, Alberta and past president is Toronto's Dr. Rod Moran.

A graduate of the University of Montreal's Faculty of Dentistry in 1968, Dr. Covit earned his Bachelor of Science degree from Sir George Williams University, now known as Concordia University in Montreal. Dr. Covit is a general practitioner.

For the past 11 years, Dr. Covit has been active in the political and insurance fields as they relate to dentistry. He is a past president of the Quebec Dental Surgeons Association (QDSA), a member of the Order of Dentists of Quebec, the Mount Royal Dental Society and the Société dentaire de Montréal. This month, Dr. Covit will attend the meeting of the Fédération dentaire internationale (FDI) in Paris.

Dr. Covit was chairman of the Board of the QDSA and is presently consultant to the QDSA negotiating team with the Quebec Health Insurance Plan, work he has been associated with for the past seven years. Although his QDSA term in office officially ends this month, Dr. Covit will continue his work in negotiations. He will also remain directly involved with the prepaid dental insurance field.

Dr. Covit was born and raised in Montreal. He is a former golfer and, when time permits, he is a jogger. He and his wife Sharon have three children, Brandee, Hayley and Barrie.

CDA concern for research funds

The Canadian Dental Association is concerned about the low level of federal funds for dental research and has called on the federal government to: provide dental research manpower; establish career structures for dental research workers and to provide adequate grants-in-aid for dental research.

Pointing to the seriousness of the problem, CDA president Dr. Clyde Covit said that the cost of dental disease in Canada in terms of lost man hours is greater than that for coronary heart disease.

Last year, support for operating costs for dental research funding totalled only 1.5 million dollars and came from the Medical Research Council of Canada, the provincial governments and the National Institute of Health in the United States.

Virtually all dental research in Canada is undertaken by the ten Canadian faculties of dentistry. There is no national institute for dental research with the result that Canadian dental research is largely dependent upon provincial support for education which provides the physical facilities and manpower.

Although dental disease is not life threatening said Dr. Covit, most Canadians have, or have experienced dental disease. And because it is so extensive, the benefits of dental research such as fluoridation have a dramatic impact and are cost effective.

Due to the complex nature of dental education and because of the relationship between dental educators and research, most academic staff are overloaded with teaching and administrative duties and cannot undertake this nation's dental research effort.

If the federal government moves to meet our requests, said Dr. Covit it will mean better teaching of dental health professionals, better health care delivery and a realistic opportunity to diminish one of the most prevalent diseases in Canada.

Lloyd Bowen receives membership

Lloyd Bowen, CDA's Fluoridation Officer receives his Honorary Membership from Dr. Rod Moran, left, Mrs. Bowen looks on. (See Journal, September, 1979.)

Faculty News

McGill . . . Dr. Peter Noble and Dr. Ken Bentley have had their NCI grant renewed for the coming year for continuing studies on the interaction of lymphocytes with oral tumours.

University of British Columbia . . . Dr. William A. Richter has been appointed professor and head, Department of Restorative Dentistry effective January 1, 1980. He is presently professor and chairman of the Division of Restorative Dentistry, University of California . . . Dr. Janet Dorey joined the Department of Oral Medicine recently. A graduate of McGill University, Dr. Dorey earned her M.Sc. at the University of Indiana. She will teach in the disciplines of oral medicine and diagnosis . . . Jane Wong, a dental hygienist, has been appointed assistant to the director of Continuing Dental Education at U.B.C.

University of Toronto . . . Dr. Marjorie Jackson, professor, Faculty of Dentistry, is the first Canadian woman to be elected a Fellow of the International College of Dentists. A native of St. Thomas, Ontario, Dr. Jackson earned her Diploma in Dental Nursing and her DDS from the University of Toronto. She practised children's dentistry for nine years from 1950 to 1959 until her appointment as full time associate professor at U of T's Department of Pedodontics. She was appointed professor of Dentistry and director of the Division of Dental Hygiene in 1967. Dr. Jackson is the co-author of several research articles and has designed course programs in preclinical and clinical dental hygiene and in dental assisting.

Down-under experiments to reduce caries rate

An Australian dentist is involved in two experimental studies on dental caries. Evidence from the first project suggests that dental caries can be transmitted from person-to-person by saliva, according to Dr. Anthony Rogers, senior lecturer in Oral Biology at the University of Adelaide, South Australia.

His second project, conducted in conjunction with Dutch scientist, Dr. J.S. van der Hoeven of the University of Nijmegen in the Netherlands, is aimed at finding, and introducing into the mouth, an organism that will reduce the rate of dental caries.

According to Dr. Rogers, the most significant aspect of the first project is that it established that streptococcus mutans, one of the organisms involved in caries production, is transmissible by humans. To identify these organisms, Dr. Rogers developed a method for 'fingerprinting' them similar to ways used to trace outbreaks of diseases such as typhoid.

He studied the extent to which organisms are transferred in various groups such as families, school classes, institutions and other closed community groups. Results to date indicate the streptococcus mutans, which does not occur in human mouths until infants are 12 months old, is transmitted within a high proportion of family groups, but not within school classrooms or other closed groups.

The second project, with Dr. van der Hoeven, has implications beyond diseases of the mouth.

It is hinged on the role normal bacterial flora play in preventing disease. Dr. Rogers said it has been found that the stability of the resident bacterial population was an important factor.

"What we have been doing," said Dr. Rogers, 'is studying the interaction of various bacteria in the dental plaque of germ-free and specific pathogen-free rats." One thing discovered in his experiments, according to Dr. Rogers, was that certain antibiotic-like substances were produced by particular organisms in the plaque and these prevented potential pathogens from becoming established.

Introduced into rats with a strain of organisms known to produce a lot of caries, the pathogen resulted in a greatly reduced production of the normally expected rate of caries.

The suggestion is, said Dr. Rogers, that dental caries might be prevented in humans by painting teeth with such an organism.

The research projects are supported by the National Health and Medical Research Council of Australia, the Australian Dental Research and Education trust and the Organization for Pure Scientific Research in the Netherlands.

OMISSION: Dr. Gordon W. Thompson's name was inadvertently left off the list of authors of the paper "The Dental Aptitude Test — Its Application in Admissions;" one in a series of articles published in the August, 1979, Journal.

Jacques Chenevert, conference coordinator, left and David Baird, conference chairman, right, discuss the 1979 Students' Conference agenda with Dr. Dick Evans, Executive Council liaison. The conference was held last month in Quebec City.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on August 31, 1979:

Common Stock Fund	$45.495
Fixed Income Fund	$22.517
Guaranteed Fund	$16.203
Balanced Fund	$12.269

Total assests (market value) of the plan were $34,667,241.

The previous month's figures, as of July 31, 1979, stood as follows:

Common Stock Fund	$43.309
Fixed Income Fund	$22.599
Guaranteed Fund	$16.092
Balanced Fund	$11.855

Total assets (market value) of the plan were $34,400,243.

For further information write to: Canadian Dental Service Plans Inc., P.O. Box 7500, Station A, Toronto, Ontario M5K 1A0

Ontario grants

Dr. L.N. Johnson, of the Department of Restorative Dentistry, University of Western Ontario, was recently awarded a $29,739 grant to study the physical properties of dental materials. The money is part of more than $3 million from the Ontario Health Ministry for research in provincial universities, hospitals and special agencies.

Other dentists from UWO who received grants from the provincial ministry include Dr. R.E. Jordan, also of the Department of Restorative Dentistry and Dr. M. Suzuki with the Division of Operative Dentistry.

Dr. Jordan is working on two projects; one to experiment with the arrest of carious (molecular decay in bone) lesions by means of a fissure sealant and a second to study the comparative marginal integrity of high copper amalgam alloys.

Dr. Suzuki's is a clinical and laboratory study of the immediate polish of high copper amalgam alloys. He has been allotted $15,900 for this work.

Grants were also awarded to Dr. D.W. Lewis of the Department of Dentistry, University of Toronto, for a survey of dental health care services and epidemiology research, work which is now in its second phase.

U of T's Dr. D.C. Smith has received $22,110 for his project 'bonding to teeth through crystal growth.' Dr. Smith has received a further grant of $44,900 from the Medical Research Council (MRC) to study the bonding of reactive monomers and polymers to enamel, dentine and bone. He has also been awarded a Commonwealth Travelling Fellowship by the Australian Department of Education to visit Australia and carry out research at the Australian Dental Standards Laboratory during the early part of 1980.

Dr. P.A. Watson's Ontario Ministry of Health grant will enable him to conduct a dental study on veneer castings with electroplated matrices (gold alloy casting on electroplated base mould).

The 1979 Canadian Dental Students' Conference held in Quebec City last month was attended by representatives of Canada's ten faculties of dentistry and CDA's Council on Student Affairs. The conference was sponsored by Colgate-Palmolive through a grant to CFDE and was hosted by the Canadian Dental Association and Université Laval École de médecine dentaire. The conference is designed to familiarize students with organized dentistry in Canada and the work of CDA and to give delegates the opportunity to discuss issues of concern to Canadian dental students. Highlights of the conference included tours of Laval's new dental facilities, the university sports complex and a lecture on dentistry in Quebec by Dr. Jean Laporte. Conference delegates, standing left to right, include: Bill Leskiw, UWO, Council on Student Affairs; Jacques Chenevert, Laval, conference coordinator; David Kapusianyk, Saskatchewan; Dr. Donald Neal, Council on Student Affairs; Bryan Budning, McGill; Greg Burk, Dalhousie; Salim Kamani, Manitoba; Linda Teteruck, Canadian Dental Association director of Student Affairs; Dr. Gary Cousens, Council on Student Affairs and CDA governor; David Baird, UBC, conference chairman; Dr. Dick Evans, CDA Executive Council liaison; Bruno Seguin, Alberta. Front row: Josée Letourneau, Université Laval; Pennie Thornton, UWO; Milena Simicic, Montreal; Kerstin Conn, UBC; and Lynn Tomkins, Toronto, recently elected governor-elect to CDA's Board of Governors.

First woman dean

Patricia Picard Cormier has been named associate dean of Academic Affairs of the School of Dental Medicine at the University of Pennsylvania in Philadelphia. Dr. Cormier is the first woman, non-dentist to hold so high an administrative position at the University.

A native of Bridgeport Connecticut, Dr. Cormier received an A.S. in Dental Hygiene from the University of Bridgeport, her B.S. from Boston University and her Masters and PhD. in Education from the University of Virginia. She has been with the Penn Dental School since 1973.

Acknowledgement: "X Rays . . . X Rays . . . X Rays — they can be used safely", recommendations from the Canadian Dental Association were adapted from a position paper originally published by Dr. W.M. Zuk, head, Radiation Hazards Division, Department of Health and Welfare Canada.

Fluoridation statement from Crombie

In this Year of the Child, tooth decay is still a widespread and costly disease. Fluoridation of public water supplies is the most effective and inexpensive method of combating it.

Canada has had successful experience with fluoridation for 34 years yet only 46 of every 100 Canadians on public water supplies who could have this benefit are receiving it.

For a great many years the Department has been satisfied with fluoridation's safety and benefits.

I have no hesitation therefore in advocating the widest practicable implementation of this public health measure by the authorities responsible for community water supplies in Canada.

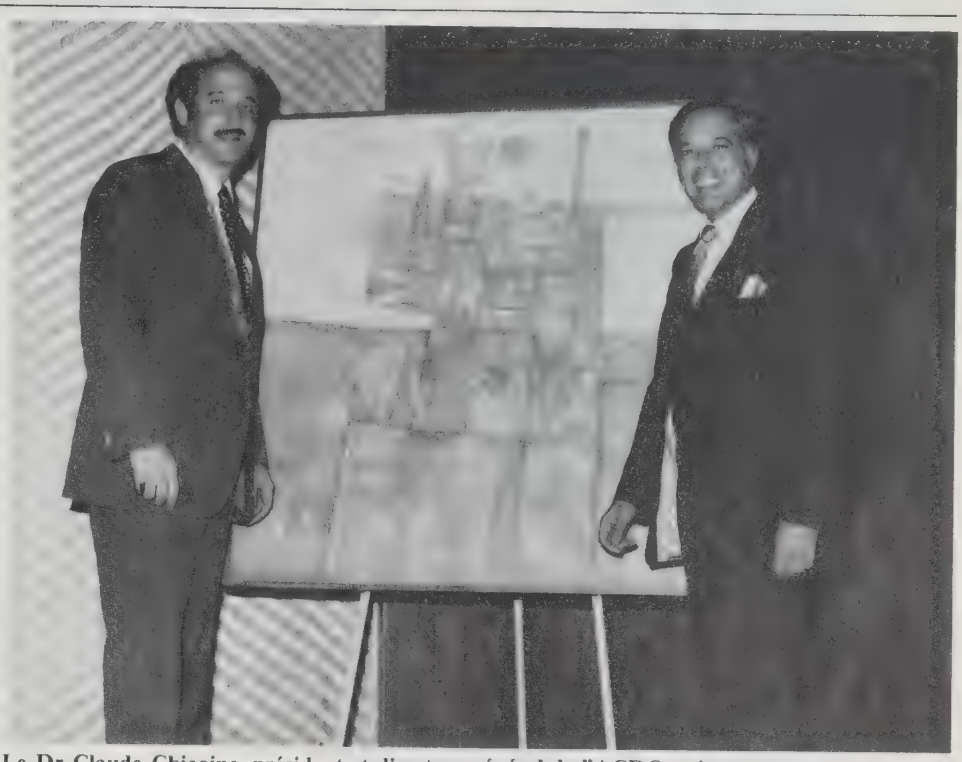
David Crombie
Minister,
National Health and Welfare

Dr Clyde Covit, président, a été investi

Le président de l'Association dentaire canadienne, le docteur Clyde Covit, dentiste montréalais, a été investi de sa nouvelle fonction lors du Congrès annuel de l'Association tenu à Québec du 9 au 12 septembre. Il succède au docteur Rod Moran, de Toronto. Le docteur Gilbert Utas, de Grande Prairie, en Alberta, sera appelé à le remplacer l'an prochain.

Diplômé de l'école dentaire de l'Université de Montréal en 1968, le docteur Covit s'est mérité un baccalauréat ès sciences à l'Université Sir George Williams, l'actuelle Université Concordia à Montréal. Depuis, il est praticien général.

Au cours des onze dernières années, le docteur Covit s'est occupé de politique et d'assurances en rapport avec l'art dentaire. Jadis président de l'Association des chirurgiens dentistes du Québec (A.C.D.Q.), il appartient actuellement à l'Ordre des dentistes du Québec ainsi qu'aux Sociétés dentaires de Mont-Royal et de Montréal. Le mois prochain, il prendra part au Congrès de la Fédération dentaire internationale qui se tiendra à Paris.



Le Dr Claude Chicoine, président et directeur général de l'ACDQ présente une peinture au Dr Clyde Covit, président de l'ADC.

Le docteur Covit était président du Conseil de l'A.C.D.Q. et, présentement, il agit comme dentiste consultant auprès du groupe des négociateurs de l'A.C.D.Q. au sujet du Régime d'assurance santé du Québec, fonction qu'il exerce depuis sept ans déjà. Bien que ce mandat doive expirer ce mois-ci, le docteur Covit a l'intention de poursuivre ses travaux de négociations. De plus, il continuera à s'occuper du plan d'assurance dentaire.

Le docteur Covit a reçu sa formation à Montréal, sa ville natale. Ancien amateur de golf, il aime faire du jogging dans ses moments de loisir. Avec son épouse, Sharon, il a fondé un foyer qui compte trois enfants: Brandee, Hayley et Barrie.

L'école dentaire à Borden

L'Ecole dentaire des Forces canadiennes située à Borden, en Ontario, offre des cours d'hygiène et d'assistance dentaires reconnus par l'Association dentaire canadienne. Bien que ces cours soient reconnus depuis 1973, ils ont été revus par le Conseil d'Education cette année.

Les cours d'assistance dentaire furent donnés originellement à Toronto, par le Service dentaire des Forces canadiennes, à partir de 1943, puis à Ottawa après 1947. Depuis 1957, ils se donnent à Borden.

Actuellement, l'Ecole offre à ses diplômés d'autres cours pour parfaire leurs études dentaires. Elle s'occupe de l'éducation de tous les assistants dentaires des Forces canadiennes et c'est le seul centre du genre au Canada.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 août 1979.

Fonds d'actions ordinaires	$45.495
Fonds à revenu fixe	$22.517
Fonds garanti	$16.203
Fonds de placement équilibré	$12.269

L'avoir total (valeur marchande) du régime s'élevait à $34,667,244.

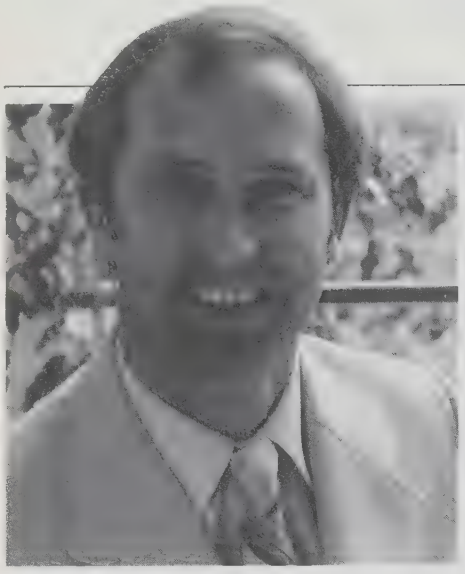
Au 31 juillet 1979, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$43.309
Fonds à revenu fixe	$22.599
Fonds garanti	$16.092
Fonds de placement équilibré	$11.855

L'avoir total (valeur marchande) du régime s'élevait à $34,400,243.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, P.O. Box 7500, Station A, Toronto, Ontario M5K 1A0.

Le prix de la FCRD



Dr John Hardie

Cette année, le prix de la Fondation canadienne de la recherche dentaire a été attribué au docteur John Hardie, spécialiste de la biologie buccale, pour son essai intitulé: "Scanning Electron Mictoscopy of the Dermal-Epidermal Interface in Chemical Carcinogenesis."

Ce prix est décerné chaque année et confère beaucoup de prestige au lauréat. Est éligible tout étudiant diplômé, qu'il poursuive ou non ses études, et qui s'est distingué par l'excellence de ses travaux de recherches dans l'une des dix écoles d'art dentaire du Canada. Les inscriptions sont soumises à un conseil arbitral de trois juges désignés par le Conseil sur les matériaux et appareils dentaires de l'Association dentaire canadienne.

Le docteur Hardie est professeur adjoint à l'école dentaire de l'Université de l'Alberta, à Edmonton, et il y enseigne la pathologie buccale. Il a obtenu son Baccalauréat (Bachelor of Dental Science) à l'Université de Glasgow, en Ecosse, et sa Maîtrise (Master of Science) à l'Université Western Ontario où il s'était antérieurement initié à la recherche.

C'est à l'Université Western Ontario que le docteur Hardie a effectué les travaux de rechercehs qui lui ont valu le prix de la Fondation canadienne de la recherche dentaire. Il a reçu $500.00 et une plaque commémorative de l'Association dentaire canadienne. Le trophée de la FCRD sera conservé à l'Université Western Ontario pendant un an; il a déjà été présenté au doyen de l'école dentaire. Le docteur Hardie était également invité au Congrès national de l'Association dentaire canadienne tenu à Québec. C'est au cours de ce congrès qu'on lui a remis son prix.

Dr Gilbert Utas a été élu président désigné

Lors du Congrès annuel de l'Association dentaire canadienne tenu à Québec du 9 au 12 septembre, le docteur Gilbert Utas a été élu président désigné de l'Association.

Né en Alberta, le docteur Utas y fit ses études et devint professeur au secondaire. Par la suite, il s'inscrivait à l'école d'art dentaire de l'Université de l'Alberta et y obtenait son diplôme en 1964. Depuis, il est praticien général à Grande Prairie, en Alberta.

Au cours de la Seconde Guerre mondiale, le docteur Utas servait dans la marine comme radiotélégraphiste. A Grande Prairie, il a été maître de la loge maçonnique, président de la fraternité des Shriners, président du Conseil scolaire et, actuellement, il est membre de la Chambre de Commerce. De plus, il fait partie de l'American Society of Clinical Hypnosis et de l'Académie Pierre Fauchard.

Jadis président de l'Association dentaire de l'Alberta, le docteur Utas s'est joint à l'Association dentaire canadienne, a fait partie de son Conseil exécutif pendant deux ans et, depuis 1974, agit comme l'un de ses administrateurs.

Le président désigné de l'Association dentaire canadienne a obtenu un mandat d'un an. Le président actuel de l'Association est le docteur Clyde Covit, de Montréal, et le président sortant est le docteur Rod Moran, de Toronto.

Le docteur Utas et son épouse Olive ont quatre enfants, soit deux filles et deux garçons.

"les rayons X . . . Il y a des mesures pour limiter les risques"

. . . Les rayons X ne présentent aucun dangers les recommandations de l'ADC ont été adaptés à partir d'un manifeste publié originellement par le Dr W.M. Zuk, chef de la Division des dangers des rayonnements pour le Consommateur et le patient de Santé et Bien-Être Canada.

Un nouveau Journal

Selon le directeur général de la Fédération Dentaire Internationale, le docteur Jan Erik Ahlberg, le "Tropical Dental Journal", depuis qu'il a commencé à paraître l'an dernier, "s'est affirmé comme une revue sérieuse contenant des articles documentés ainsi que des renseignements sur l'organisation et l'administration des soins oraux dans les pays tropicaux."

Le "Tropical Dental Journal" est publié en français et en anglais.

Pour plus de renseignements, on peut communiquer avec le rédacteur en chef, le professeur G. Grappin, au 2939 Dakar, Sénégal.

Les bourses de $3 millions

On a octroyé une bourse de $29,739.00 au docteur L.N. Johnson pour qu'il entreprenne des recherches sur les propriétés physiques des matériaux dentaires. Le docteur Johnson est membre du département de dentisterie restorative (Department of Restorative Dentistry) à l'Université Western Ontario. Cette bourse provient des trois millions de dollars que le Ministère de la Santé de l'Ontario assigne à la recherche menée dans les universités de la province, les hôpitaux et certaines agences.

D'autres dentistes de l'Université Western Ontario ont reçu des bourses. Ce sont les docteurs R.E. Jordan et M. Suzuki. Le docteur Jordan est, lui aussi, membre du département de dentisterie restorative. Il participe à deux projets de recherches. Le premier consiste à faire des expériences pour enrayer l'ostéite (destruction progressive des tissus osseux) au moyen d'un obturateur des fissures, et le second, à comparer l'intégrité marginale des alliages à teneur élevée en cuivre. Pour sa part, le docteur Suzuki a reçu $15,900.00. Ses recherches se font en clinique et en laboratoire et elles portent sur le polissage immédiat des alliages à teneur élevée en cuivre.

Le docteur D.W. Lewis, de la Faculté dentaire de l'Université de Toronto, a également reçu une bourse pour poursuivre une enquête sur les soins dentaires et faire des recherches en épidémiologie. Le docteur Lewis en est déjà à la deuxième phase de son travail.

Le docteur D.C. Smith, également de l'Université de Toronto, a reçu $22,110.00 pour son projet de recherches intitulé: "Bonding to teeth through crystal growth." De plus, il a obtenu une bourse de $44,900.00 du Conseil médical des recherches afin d'étudier la liaison des monomères et des polymères réactifs à l'émail, à la dentine et aux os. En outre, le Ministère de l'Education de l'Australie lui a remis une bourse, le Commonwealth Travelling Fellowship, pour lui permettre, au début de l'année 1980, de visiter l'Australie et de mener des recherches à l'Australian Dental Standards Laboratory.

Enfin, grâce à la bourse que lui a octroyée le Ministère de la Santé de l'Ontario, le docteur P.A. Watson pourra faire des recherches sur les moulages (avec des alliages d'or) produits au moyen de matrices électroplaquées.

Deux projets de recherches

Un dentiste australien participe à deux projets de recherches expérimentales sur la carie dentaire. Selon le docteur Anthony Rogers, maître des conférenciers en biologie buccale à l'Université d'Adélaïde, en Australie du Sud, les résultats du premier projet tendent à démontrer que les caries dentaires peuvent se transmettre d'un sujet à un autre. Le second projet est mené conjointement avec un savant hollandais, le docteur J.S. van der Hoeven de l'Université de Nijmegen, dans les Pays-Bas. L'objectif de ce second projet est de trouver un micro-organisme qu'on pourrait appliquer oralement afin de réduire l'incidence de la carie dentaire.

Au dire du docteur Rogers, l'importance du premier projet est d'avoir démontré qu'une bactérie, le streptococcus mutans, est transmissible parmi les humains. Cette bactérie cause la carie dentaire et, pour la repérer, le docteur Rogers a établi une méthode de dépistage semblable à celle qu'on utilise pour retracer l'origine de certaines maladies comme la typhoïde, par exemple. Ainsi il s'est appliqué à déterminer jusqu'à quel point les bactéries pouvaient se répandre à l'intérieur de milieux restreints comme la famille ou un groupe scolaire. Jusqu'à maintenant, les recherches indiquent que le streptococcus mutans ne se développe pas dans la bouche des enfants avant qu'ils n'aient atteint l'âge de douze mois. Cependant, dans la très grande majorité des cas, il se transmet aux membres d'une même famille, mais non à ceux d'un groupe scolaire ou de tout autre groupe nettement circonscrit.

Le second projet ne touche pas seulement aux maladies buccales parce qu'il porte sur le rôle que la flore bactérienne joue normalement dans la prévention des maladies en général. En effet, de dire le docteur Rogers, on a découvert que l'équilibre de la flore bactérienne est un facteur de santé primordial. Aussi, a-t-il poursuivi, a-t-on étudié l'interaction de différentes bactéries sur la plaque dentaire de rats ne portant aucun germe microbien ou pathogène. Les expériences ont alors révélé que certaines bactéries dans la plaque dentaire produisent une substance qui agit comme un antibiotique et détruit les éléments pathogènes susceptibles d'entraîner la carie. Cette substance ainsi que des bactéries pathogènes de la carie dentaire furent administrées à des rats et, comme on pouvait le prévoir, le nombre des caries fut moindre que celui auquel on se serait attendu normalement. C'est pourquoi, a conclu le docteur Rogers, il serait peut-être possible d'enrayer la carie dentaire en appliquant sur les dents la substance en question.

Ces projets de recherches sont subventionnés par le National Health and Medical Research Council of Australia, le Australian Dental Research and Education Trust et l'Organization for Pure Scientific Research des Pays-Bas.

Sue Woods, we're with you all the way!

Whether she knows it or not, when it comes to making her workday a little easier, her pro-professional problems a little lighter, and the practice run a little smoother, Ash Temple is right there with her. In many ways we are both in the same business – providing profes-sional and needed dental services.

At Ash Temple, we know what demands she is under, and we have representatives across Canada to help her meet these demands. Whether it be needed supplies, or new product information, the Ash Temple representative is anxious to talk, to advise, and to serve. Because Ash Temple have been in business serving dentists for over 80 years, our representatives know dentistry, they know her problems, and in many cases, they have the answers.

In short, we can play an important part in making Sue's work life a little lighter – a little smoother. Next time things are hectic, look around Sue, you've got company – the Ash Temple Company.

Ash Temple LIMITED

Convention '79

The Canadian Dental Association Convention last month in Quebec City attracted dentists, students, hygienists and other health care personnel from across Canada who along with more than 100 exhibitors filled the Centre Municipal des Congrès, Quebec's Convention Centre.

"There are big problems in this country. We must get together, work hard and find solutions for the good of all Canadians," said Jean-Pierre Côté, Lieutenant Governor of the Province of Quebec, as he officially launched the three-day annual meeting September 9 to 12.

His excellency and Madame Côté and Dr. Rod Moran and Mrs. Moran entered the opening ceremonies in a horse drawn calèche. Dr. Moran's term as president of the Canadian Dental Association expired at the end of the Convention.

The highlight of the social program was the President's Ball which took place Monday evening, September 10.

The next night, Convention organizers sponsored "Tuesday Night Fever," a disco and Cassino night.

Dr. Clyde Covit was installed as CDA president at Monday's Installation Luncheon. Mr. Lloyd Bowen, CDA's fluoridation officer was presented with an Honorary Membership in the Association in recognition of his many years of service with CDA in the area of fluoridation.

Winners of the trip to Paris and the FDI conference in Paris this month were Dr. and Mrs. D.H. MacDougall of Edmonton, Alberta.

The scientific side of the convention was highlighted by the presentation of Dr. Denis Forest. In a press conference after his paper "Doctor, are x rays dangerous?", Dr. Forest disputed recent claims that patients are being exposed to dangerous amounts of radiation during routine dental x rays.

Dr. Forest is chief of Radiology at the University of Montreal Dental Faculty.

Agreeing there are cases of "excess," in x rays, Dr. Forest was emphatic that there are no proven links between dental x rays and cancer. Dental x rays, he said, comprise three per cent of all medical x rays.

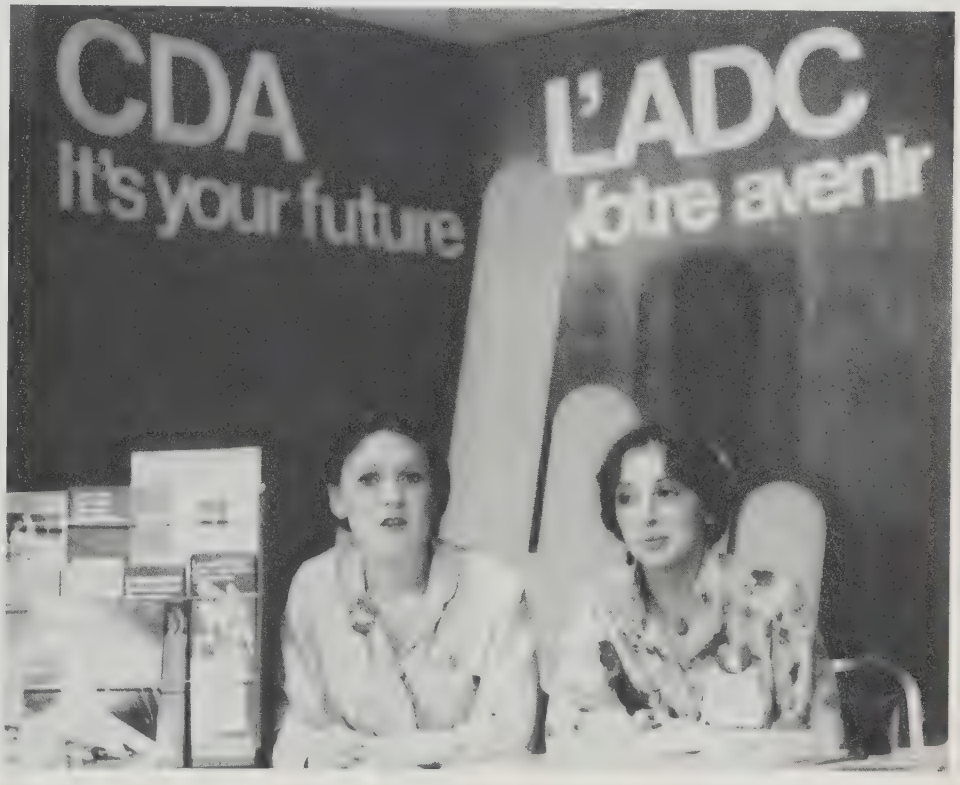
Dr. Forest's comments were reported by both English and French media across Canada.

In his presentation Dr. Forest looked at recent Quebec legislation in the area of x rays and offered an update on radiation doses required to take a full mouth survey and panographic examination. He spoke to a near-capacity audience.

He also reported on recent developments in conventional and panographic radiology and interpretations of x rays.

Other speakers included Dr. Stephen Wei, "Advances in pedodontics, prevention and fluoride therapy"; Dr. Robert Barrickman, "Differential diagnosis and treatment of facial pain"; Dr. Pierre Desautels, "New concepts in choosing dental materials"; Dr. Bruce Larrick, "Word of Mouth"; Dr. Paul Mercier and his team of researchers who discussed the maxillary atrophy clinic established at St. Mary's Hospital; Dr. Philip Hoag, "Practical periodontics for the general practitioner"; Dr. William Laney, "Role of the dentist in a medical institution"; Dr. Murray Bloom, "Computers in dentistry"; Dr. Roger Masella, "The relationship between fixed and removable prosthodontics"; Dr. Carl Hawrish, "Differential diagnosis and management of pain in endodontics: current concepts for the general practitioner"; Dr. William Gilmore, "Recent developments in operative dentistry for the general practitioner: Prevention and mechanics"; Dr. Paul Jean, "Treatment Planning"; Dr. Victor Legault, "Importance of primary dentition"; and Dr. Arje Scheinin, "Xylitol in relation to oral and general health."

The Convention was organized by Dr. Clement Caron, chairman of the Organizing Committee. Dr. Ralph Barolet, chairman of CDA's Council on Dental Materials and Devices, organized the Scientific program and Dr. Claude Bellerose was responsible for the successes of the social program. Dr. Claude Bussière was chairman of the Registration Committee, Dr. Jean Laporte chaired the Exhibit Committee, Dr. André Rivard was chairman of the Technical Facilities Committee and Dr. Benoit Tanguay chaired the Publicity Committee.



CDA Board of Governors in Quebec

Provincial and National differences and similarities were underscored during the two-day meeting of the Board of Governors last month prior to the Canadian Dental Association Annual Convention in Quebec City.

The Convention was held from September 9 to 12.

PREPAID DENTAL PLAN MANUAL

The Board of Governors agreed that the "CDA Policies on Prepaid Dental Plans and Guide on How to Complete Dental Claim Forms," be distributed to CDA members.

After some concern was expressed that the distribution of the manual could be confusing where corporate bodies have already produced a set of guidelines for their members, it was agreed that a statement, prominently displayed on the inside front cover that "Provincial Guidelines and Policies may differ and should prevail over and above those contained in this Manual" would clarify the position of the CDA publication.

Those provinces that do not have existing guidelines felt the CDA manual would be well received.

It will be distributed with the permission of the corporate bodies but will also be available to individual dentists on request.

ACCREDITATION

A liaison committee of four will be established with representation from the Council on Education and the Council on Hospital Services to discuss documentation and policy.

The committee will work towards the resolution of difficulties experienced in the area of graduate and post graduate programs where the work experience is obtained in hospitals.

Representatives from Hospital Services are Dr. James Main and Dr. Mervin Gornitsky. Council on Education representatives are, as yet, unnamed.

CDSPI IN QUEBEC

CDSPI was given permission by the Board to absorb the extra cost of increasing the malpractice coverage for the Quebec graduates' insurance package to one million dollars.

Permission was granted because of changes in Quebec law that state all dentists in that province must carry malpractice insurance coverage up to that sum.

CDSPI has negotiated with the Guardian to provide coverage to satisfy the requirement and dentists who do not presently receive the coverage will be billed accordingly.

The Board of Governors also recommended approval of the proposed By-Laws for CDSPI.

FDI CHAPTER

The Board debated the value of the formation of a North American chapter of the Fédération Dentaire Internationale. Dr. C.E. Gosselin of Quebec spoke against the Executive Council recommendation to form another FDI branch to represent dental associations on this continent saying, "there are so many organizations already in existence that want to take care of dentists that we are losing ourselves. I personally, cannot see the value of another organization in this country."

He also questioned how the Canadian Dental Association would handle the expense of participating in such an organization.

Dr. Rod Moran, whose term of office as CDA president expired at the conclusion of the convention, pointed out the intent was not to form another organization of dentists in this country but that by uniting with the Americans and Mexicans, North American associations would gain a seat on the Executive Committee of the FDI.

Dr. Rod Moran

Dr. Moran pointed out that neither the Canadian Dental Association or the American Dental Association is satisfied with the fee structure of the FDI. According to Dr. Moran, FDI looks at the number of dentists in a country and the average per capita income of its residents, not just dentists, and charges dues accordingly. The result is that Canada, the United States and Mexico "provide fully one half of FDI's income."

The background of the resolution to form an FDI chapter to represent the interests of dentists in North America was outlined to the governors. Canada met with American and Mexican colleagues and the American Dental Association agreed to supply the administrative background for the joint venture. The Bahamas will also be represented in the North American group. ADA also funded out-of-pocket expenses during discussions, said Dr. Moran.

The bottom line is that the feeling exists that the only way for North America to be heard through FDI is by the formation of a separate chapter that will wield more power than the individual members now carry.

"We feel that the way dentistry is practised in Europe is not representative of what the profession is in Canada, the United States and Mexico," said Dr. Moran. "The only way for North American dental associations to get any satisfaction as member countries is through the establishment of a separate chapter in FDI," he continued.

The Board did approve the resolution and the blueprint of the North American Chapter of the FDI was presented this month at the 1979 meeting in Paris.

ORTHODONTIC ENDORSEMENT FORM

The Board approved a standard Orthodontic Endorsement form already passed by the Provincial Orthodontic Societies/Associations. There was some concern expressed that the one-page form was not comprehensive enough to satisfy insurance carriers. The point was made that a similar form has been in use in the province of Quebec and has been acceptable when signed by a certified orthodontist.

STUDENT MEMBERSHIP

The Board approved the Executive Council recommendation that all new graduates who have been student members in good standing of CDA be granted the status of an active member of the Canadian Dental Association from the date of graduation until December 31 of the year in which they graduate.

The definition of 'good standing' was discussed and was agreed to include the following stipulations: "that 1979 graduates must have been student members . . . during their last year of undergraduate study; 1980 graduates must have been student members . . . during their last two years of undergraduate study; that 1981 graduates must have been student members . . . during their last three years of undergraduate study; and 1983 graduates, and on, must have been student members . . . during their entire undergraduate years of study."

PRESIDENTS' MEETING

Dr. Moran reported that the Presidents' Meeting, held Friday, September 7, the day before the Board of Governors convened, worked well on a format of open discussion. No resolutions were made but, said Dr. Moran, the meeting proved a good forum of open discussion for both the national Association and the provincial representatives. Specifically, the corporate bodies updated CDA on the dental therapists situation in their respective provinces.

FUTURE CONVENTIONS

The recommendation that the 1980 CDA Convention be held in Halifax, Nova Scotia, was accepted by the Board of Governors. The following four years, up to and including 1984, are posing a problem but CDA is now working actively on a priority list for at least the next five years into the 1980's.

LIFE MEMBERSHIP

When the discussion of Life Membership was completed, it was re-established that the initiative to make application for Life Membership in CDA must come from the dentist. Application forms are available from CDA and they must be approved by the Executive Council before a Life Membership is granted.

PAMPHLETS

Recently published pamphlets include "Care Following Minor Oral Surgery," "Dental X rays Show Hidden Problems," "Prepaid Dental Insurance," and "Eating Properly for Better Dental Health."

Only a unified profession can meet demands - Moran

"My most profound concern a year ago was that the dental profession needed to be unified in this country to meet future demands, interruptions and interference," said Dr. Rod Moran in an address at the Installation Luncheon during the Canadian Dental Association Annual Convention last month in Quebec City.

During the past year, as president of the Canadian Dental Association, Dr. Moran has attempted to develop closer ties between the national Association and the corporate members through direct contact with groups that represent Canadian dentists.

"I have met with most of the directors of the various provinces in an effort to identify the needs of both the corporate members and the individual dentists and what they feel should be the direction of our Association," said Dr. Moran.

He described a recent meeting with David Crombie, minister of Health and Welfare during which Dr. Moran explained that the dental profession in Canada feels that the Federal Government is working at cross purposes to the profession in almost every count.

"I received assurances that immediate steps would be taken to establish a substantial interface between the dental profession in Canada and the Federal Government so that we have full input into dental health care planning," said Dr. Moran.

After thanking the dentists of Canada for the opportunity to serve them as their president, Dr. Moran presented the chain of office to Dr. Clyde Covit of Montreal who is now president of the Canadian Dental Association.

Dr. Moran will continue his work, with the CDA Executive as past president and Dr. Gil Utas of Grande Prairie, Alberta is the new president-elect.

Dr. Rod Moran, right with Dr. Clyde Covit

CDA must initiate policy

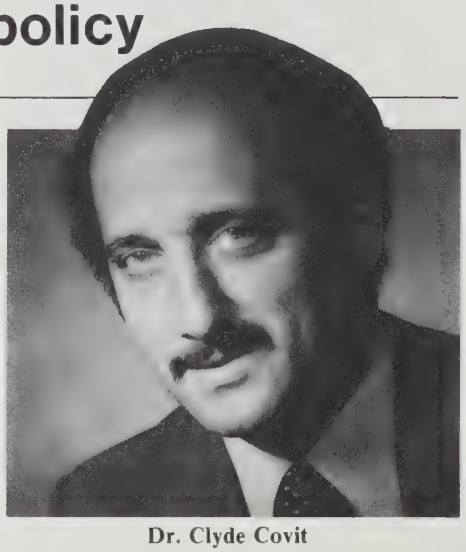
In his acceptance speech, after receiving the Presidential Chain of Office, Dr. Clyde Covit continued Dr. Moran's theme of "unification" in the profession of dentistry.

"I appeal to you as individuals, as corporate members, to work together . . . to provide a free flow of information to CDA headquarters so that we can share and direct information back to you." said Dr. Covit. "It is in the best interests of Canada's more than 10,000 colleagues in the dental profession that we act as one united voice . . . which is our profession's only protection."

There are positive changes in the Canadian Dental Association, said Dr. Covit. Where the Association once reacted to government policy, it will now initiate.

"Our new approach, and the one we plan to pursue, is to actively participate in Federal Government planning and to make sure our input, our views and our expertise are an integral part of any decision relating to our profession," emphasized Dr. Covit.

The president pointed out that the team approach that worked successfully during Dr. Moran's presidency will be expanded to encompass the expertise of Dr. Utas, president-elect.



Dr. Clyde Covit

"Our cause is good quality health care. Our profession demands we protect the integrity of that cause. That integrity is based on our belief that the patient comes first. Nothing must interfere with the profession — be it government or any other structured institution. Nothing must interfere with Canadians' rights to the best quality health care possible."

With this emphasis on the determination of the profession of dentistry to maintain its own standards without government interference, Dr. Covit set the tone of the incoming Executive of the Canadian Dental Association. He predicted that, with the help of his colleagues across the country, "CDA will be the finest national professional organization in Canada" — one that dentists will be proud to look to as the leader in their profession.

Medicare "politics"

"Medicare has become a political football," said Dr. Joseph Cappuccio, president of the American Dental Association during his address to the Board of Governors last month.

"The United States cannot afford national health insurance from the cradle to the grave," he continued. "We are already spending $165 billion on health care and that will climb to over $300 billion if Senator Edward Kennedy has his way."

Only $11 billion is spent annually in the United States on dental health care, said Dr. Cappuccio. "Politicians ought to get behind prevention and fluoridation if they want to promote health care for the poor and needy," he said.

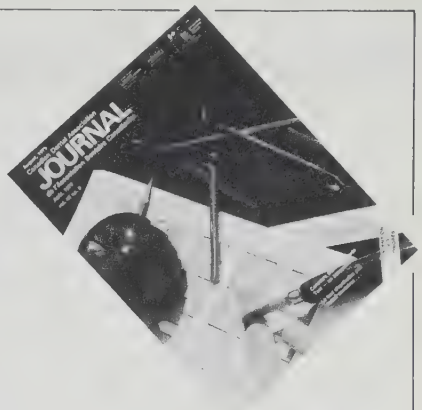
"The American Dental Association is pushing fluoridation because we have proven beyond a shadow of a doubt that it reduces tooth decay by up to 65 per cent."

Dr. Cappuccio was invited to the Board of Governors and spoke on the second day of the meeting. He emphasized the need for a unified North American approach to the FDI and said that the Canadian Dental Association had a "forceful leader" in Dr. Moran on the international scene.

Dr. Joseph Cappuccio

The ADA president closed his address urging Canadian dentists to keep the lines of communication open with their American colleagues and "to weld strong professional bonds across the border."

Dr. Rod Moran, left, congratulates Dr. and Mrs. D.H. MacDougall of Edmonton, Alberta, on their win of a free trip to Paris and the FDI Conference this month.



Journal goes full circulation

The Journal of the Canadian Dental Association is now available to every dentist and dental student in Canada.

A decision of the Board of Governors at their recent meeting in Quebec City, to permit the Journal to move into full circulation means that the publication will reach 100 per cent of the dentists and dental students in Canada. It is also distributed on a subscription basis to auxilliaries. Libraries, hospitals, dental manufacturers and laboratories are on the Journal mailing list.

The Journal's long-standing editorial policy of publishing only original scientific material will be adhered to and new departments such as Book Reviews, Continuing Education and Student News are being added to the Journal so that items of interest to dentists across the country will be conveniently categorized.

Combined with a schedule of re-design, it is hoped that these improvements will make the Journal more truly representative of dentistry in Canada.

The full-circulation resolution approved by the Board is effective immediately.

Students participate in 9th Table Clinic Program

The ninth Canadian Student Table Clinic Program was held in conjunction with the 78th National Convention of the Canadian Dental Association/Association Dentaire Canadienne from September 9 through 12, 1979, in Quebec City, Quebec. The Program was sponsored by Dentsply Canada, Ltd., through a special grant made to the Canadian Fund for Dental Education.

This year's Program for Canadian students marked the ninth consecutive year that the Council on Education of the Canadian Dental Association has conducted the clinics and all ten Canadian dental schools were represented.

Students received an expense paid trip to Quebec to present their table clinics after placing first in their School's Spring Table Clinic program. In those schools without such a program, the Dean of the Dental School was invited to select an outstanding student clinician to participate in the annual event. Under the definition established by the Council on Education, a table clinic is a table top demonstration of a technique or procedure concerned with some phase of research, diagnosis or treatment related to the profession of dentistry.

Students participating, their schools and clinic titles were: Mark E. Antosz, University of British Columbia — "Endorphins and their role in pain;" Robert D. Berlin, McGill University — "Clinical examination of the head and neck musculature and TMJ;" Jose Bisaillin and Denise Michaud, University of Montreal — "Mastication — chez la lapine;" Richard A. Copeland, Dalhousie University — "Preprosthetic augmentation of atrophied edentulous mandibles;" Gilles Coté, Laval University — "Action antibacterienne de ciments intracanalaires;" Raymond Kanoza, University of Toronto — "Effect of hypofunction of collagen metabolism in periodontal ligament;" Sandra Lamb, University of Manitoba — "Hexokinases of salivary glands;" Richard M. Shillington, University of Alberta — "An ultrastructural study of wound healing;" Neil Thakore and Douglas Thomas, University of Saskatchewan — "Restoration of abutment teeth for existing removable partial dentures;" and Frederick J. Zietsma, University of Western Ontario — "Impression procedures for immediate dentures."

Participating student clinicians and program sponsors gathered for this photograph during the Canadian Dental Association's opening ceremonies on Sunday evening. Seated (l. to r.) are Robert D. Berlin, McGill University; Jose Bisaillon, University of Montreal; Mr. Henry M. Thornton, chairman and chief executive of Dentsply International; Denise Michaud, University of Montreal; Dr. Rod L. Moran, president of the Canadian Dental Association; and Sandra Lamb, University of Manitoba. Standing (l. to r.) are Raymond Kanoza, University of Toronto; Richard M. Shillington, University of Alberta; Gilles Coté, Laval University; Neil Thakore and Douglas Thomas, University of Saskatchewan; Frederick J. Zietsma, University of Western Ontario; and Richard A. Copeland, Dalhousie University. Not pictured is Mark E. Antosz, University of British Columbia.

Bloom talks computers to full house

Dr. Murray Bloom

Dr. Murray Bloom, a general practitioner in Vancouver, British Columbia, is a graduate from the Faculty of Science at U.B.C. and a dentistry grad from the University of Alberta.

He has applied his interest in, and knowledge of, computers to his profession and addressed the Canadian Dental Association Convention last month on "Computers in Dentistry."

Dr. Bloom divided his time into four distinct seminar topics. The first dealt with a general explanation of electronic data processing. Part II looked at computers in the dental office. Part III was about the selection and implementation of the EDP system in the dental office, and Part IV was time left open for discussion.

With the arrival of computers in the dentist's office and many questions about their role and their relationship to office personnel arising, it becomes important for dentists to have a basic understanding about data processing.

Dr. Bloom discussed data processing in an historical context, looking at the development of computers from 1940 on. His prediction is that by the 1980's, faster, smaller and cheaper EDP technology will make computers a feasible addition to small office setups.

Using a flow chart of a computer system, Dr. Bloom outlined in relatively simple terms, what makes up a computer system and how it works.

He then applied the basic information to dental offices outlining innovations in technology, capabilities, software and distributed processing.

There are five reasons why dentists should consider a computer system, said Dr. Bloom — to reduce processing costs; to enhance and expand existing reporting systems; to accommodate changes in the organization structure; to improve turn-around of information; and to build a base for future operations.

A dental office computer, said Dr. Bloom, has practice management applications including scheduling, billing, accounts receivable, mailing lists and on-demand reports. The system can also be applied to general accounting operations such as general ledger, financial statements, accounts payable, inventory and payroll. Other applications of an in-office computer system include financial analysis and planning, word processing and investment management.

The organized approach to selecting and implementing a computer system can be handled in three phases, according to Dr. Bloom. After the need has been identified, a feasibility study should be conducted (Phase I). Alternatives in systems should be investigated before equipment is selected (Phase II). Then, objectives are developed and the system is implemented (Phase III).

In-house systems have the advantage of being readily available, flexible and confidential. They also eliminate second-party involvement, said Dr. Bloom. Datacentre systems, however, let you buy only what you need, minimize technical problems and allow for access to specialized hardware and program packages. The decision on which route to follow can only be made after serious consideration of different requirements.

Past presidents meet. Standing; left to right, Dr. James Coupland; Dr. Rod Moran; Dr. Louis Bernier; Dr. David Peters. Seated: Dr. Remy Langlois; Dr. William Miller; Dr. Philip Christie.

CONVENTION '79
CDA
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A Booth
sque de l'ADC
Clyde Covit's parents and daughter.
parents du Dr Clyde Covit et sa fille.
ert Drouin, CDA's executive director and Mrs. Drouin with Dr. Joseph Cappuccio, ident, ADA.
cteur général, Hubert Drouin, Mme Drouin et le Dr Joseph Cappuccio, président de DA.
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ident-elect, Dr. Gil Utas with Mrs. Utas, left and Mrs. Moran.
Gil Utas, président désigné et Mme Utas à gauche, avec Mme Moran.
Clement Caron, convention chairman.
Clement Caron, directeur du congrès.
John MacKay, left with Mrs. Rife.
John MacKay à gauche avec Mme Rife.
Nick Mancini presents Mrs. Moran with flowers.
Nick Mancini et Mme Moran.
Jean-Pierre Cusson and Mrs. Cusson, left, with Dr. A.J. Calzonetti and Mrs. Calzonetti.
Jean-Pierre Cusson et Mme Cusson à gauche avec Dr A.J. Calzonetti et Mme Calzonetti.
ident Dr. Clyde Covit, left with past president, Dr. Rod Moran.
ident Dr Clyde Covit à gauche avec président sortant Dr Rod Moran.
calèche arrives.
rivée de la calèche.
Don Williams and Mrs. Williams, right, with Dr. Don Thompson and Mrs. Thompson.
Don Williams et Mme Williams à droite avec Dr Don Thompson et Mme Thompson.
allation Luncheon head table.
able d'honneur du déjeuner d'investiture.
rio's Dr. Bob Schiewe, Dr. Gary Pitkin, ODA president, and John Gillies, executive tor.
Bob Schiewe, Dr Gary Pitkin et John Gillies.
president Dr. Clyde Covit and Mrs. Covit.
dent de l'ADC Dr. Clyde Covit et Mme Covit.
d of Governors.
eil d'Administration.

Congrès de l'ADC - 1979

Dentistes, étudiants, hygiénistes et autres spécialistes du domaine de la dentisterie, ils étaient venus de tous les coins du pays pour participer au congrès de l'Association Dentaire Canadienne, tenu le mois dernier à Québec. Plus d'une centaine d'exposants étaient également venus à cette occasion faire étalage de leurs produits au Centre municipal des Congrès, dans la Vieille Capitale, du 9 au 12 septembre.

"Notre pays est aux prises avec de sérieux problèmes. Nous devons donc nous serrer les coudes, travailler dur et trouver des solutions dans l'intérêt de tous les Canadiens," a déclaré le lieutenant-gouverneur du Québec, M. Jean-Pierre Côté, dans son allocution d'ouverture du congrès de trois jours.

Son excellence et Madame Côté, ainsi que le docteur Rod Moran et son épouse, sont arrivés aux cérémonies d'inauguration dans une calèche tirée par des chevaux. Le mandat du docteur Moran à la présidence de l'Association Dentaire Canadienne prenait fin à la clôture du congrès.

Le point saillant du programme social a été le bal du Président, qui a eu lieu le lundi soir, 10 septembre.

Le soir suivant, les organisateurs du congrès avaient mis sur pied une fête intitulée "Fièvre du mardi soir", au cours de laquelle les joyeux congressistes pouvaient danser aux sons de la musique d'une discothèque ou tenter leur chance au casino.

Le lundi, le Dr Clyde Covit fut officiellement installé dans ses fonctions de président de l'ADC. Pour sa part, M. Lloyd Bowen, conseiller en fluoration de l'ADC, fut reçu membre honoraire à vie de l'Association en reconnaissance de ses nombreuses années de service à la cause de la fluoration comme membre de l'ADC.

Les gagnants du voyage à Paris et au congrès de la FDI, ce mois-ci, ont été le Dr D.H. MacDougall et Mme MacDougall, d'Edmonton, Alberta.

Le point saillant du programme scientifique du congrès a été l'exposé du Dr Denis Forest, "Docteur, les rayons X sont-ils dangereux?". Au cours de la conférence de presse qui a suivi son allocution, le Dr Forest a contesté les affirmations récentes à l'effet que les patients étaient exposés à des doses excessives de radiations pendant les examens dentaires de routine.

Le docteur Forest est chef du service de radiologie à la faculté de dentisterie de l'Université de Montréal.

N'hésitant pas à admettre qu'il existe des cas d'exposition excessive aux rayons X, le Dr Forest a néanmoins insisté catégoriquement sur le fait qu'il n'y a aucune preuve d'un lien quelconque entre les radiographies dentaires et le cancer. Selon lui, les radiographies dentaires ne constitutent que trois pour cent des cas d'utilisation des rayons X en médecine.

Les media d'information francophones et anglophones de tous les coins du pays ont fait écho des affirmations du docteur Forest.

Dans son exposé, ce dernier a passé en revue les mesures législatives adoptées dernièrement au Québec à l'égard des rayons X et il a expliqué les résultats d'études récentes sur les doses de radiations requises pour un examen complet de la bouche et pour un examen panographique.

Devant une salle presque pleine à craquer, il a également fait rapport des derniers perfectionnements en matière de radiologie classique et panographique, de même que dans l'interprétation des radiographies.

Au nombre des autres conférenciers figuraient le Dr Stephen Wei (Pédodontie et prévention), le Dr Robert Barrickman (Douleur faciale),

Dr Denis Forest

le Dr Pierre Desautels (Matériaux dentaires), le Dr Bruce Larrick (Photographie et audio-visuel en dentisterie), le Dr Paul Mercier et son équipe de chercheurs (L'atrophie des crêtes alvéolaires), le Dr Philip Hoag (La périodontie et le praticien général), le Dr William Laney (Rôle du dentiste dans un établissement médical), le Dr Murray Bloom (L'ordinateur en dentisterie), le Dr Roger Masella (La relation entre la prothèse fixe et amovible), le Dr Carl Hawrish (Diagnostic et traitement des douleurs pulpaires), le Dr William Gilmore (Les derniers développements de la dentisterie opératoire), le Dr Paul Jean (Planification des traitements), le Dr Victor Legault (La pédodontie, importance de la dentition primaire) et le Dr Arje Scheinin (Les effets du xylitol sur la santé buccale et générale).

Le congrès a été organisé par le Dr Clément Caron, président du comité d'organisation. Le Dr Ralph Barolet, président du Conseil des matériaux et dispositifs dentaires de l'ADC, s'est chargé du programme scientifique, alors que le succès du programme social reposait sur les épaules du Dr Claude Bellerose. Le Dr Claude Bussière était président du comité de l'inscription, le Dr Jean Laporte assumait la direction du comité des expositions, le Dr André Rivard présidait le comité chargé des dispositions techniques, alors que le comité de la publicité était sous la présidence du Dr Benoit Tanguay.

La réunion du Conseil d'administration de l'ADC

La réunion de deux jours du Conseil d'administration de l'Association Dentaire Canadienne, tenue le mois dernier avant le début du congrès annuel de Québec, a donné lieu à l'expression de points de vue parfois semblables, parfois divergents, entre les paliers national et provincial.

Le congrès s'est tenu du 9 au 12 septembre.

Dr Clyde Covit à gauche, président de l'ADC; Dr Joseph Cappuccio, président de l'ADA; et Dr Rod Moran, président sortant de l'ADC.

MANUEL DE DIRECTIVES SUR LE RÉGIME D'ASSURANCES DENTAIRES

Le Conseil d'administration a convenu que le manuel "Politiques de l'ADC à l'égard des assurances dentaires et Guide sur la façon de remplir les formulaires de réclamation" devrait être distribué aux membres de l'Association.

On avait exprimé une certaine inquiétude que la distribution du manuel pourrait occasionner une certaine confusion, dans les cas où les membres corporatifs ont déjà rédigé des lignes de conduite à l'intention de leurs membres. On a donc résolu d'imprimer, bien en vue à l'intérieur de la page couverture du manuel, un avis précisant que "Les lignes de conduite et politiques provinciales peuvent différer de celles du présent manuel et devraient prévaloir en cas de divergences".

Les provinces n'ayant pas déjà publié de lignes de conduite ont exprimé l'avis que le manuel de l'ADC serait bien accueilli.

Le manuel sera distribué avec l'autorisation des membres corporatifs, mais les dentistes individuels pourront également l'obtenir sur demande.

FUTURS CONGRÈS

Le Conseil d'administration a accepté la recommandation voulant qu'on tienne le congrès de 1980 de l'ADC à Halifax, Nouvelle-Écosse. Le site du congrès pour les quatre années suivantes n'est pas encore décidé, mais l'ADC dresse actuellement une liste de priorités à cet égard.

PROTECTION ACCRUE CONTRE LES FAUTES PROFESSIONNELLES AU QUÉBEC

Le Conseil d'administration vient d'autoriser le CDSPI à absorber les frais supplémentaires entraînés par la hausse de la protection contre les fautes professionnelles, disponible dans l'assurance globale offerte aux diplômés du Québec, jusqu'à concurrence d'un million de dollars.

Cette autorisation a été donnée en raison des amendements à la législation québécoise exigeant désormais que tous les dentistes de la province détiennent une assurance contre les fautes professionnelles les protégeant jusqu'à concurrence de cette somme.

Le CDSPI a mené des négociations avec la compagnie Guardian afin de faire instituer la protection requise et les dentistes qui n'en bénéficiaient pas déjà seront facturés en conséquence.

Le Conseil d'administration a également recommandé l'approbation des règlements envisagés pour le CDSPI.

CHAPITRE NORD-AMÉRICAIN DE LA FDI

Le Conseil a débattu le mérite d'instituer un chapitre nord-américain de la Fédération Dentaire Internationale. Le Dr C.E. Gosselin, du Québec, s'est opposé à la recommandation du Conseil exécutif de créer une autre filiale de la FDI pour représenter les associations dentaires de ce continent. "Il existe déjà tellement d'organisations qui veulent s'occuper des dentistes que nous nous y perdons", a-t-il déclaré. "Personnellement, je ne peux voir de bonne raison pour mettre sur pied une autre organisation dans notre pays."

Il a également demandé d'où viendraient les fonds que devrait débourser l'Association Dentaire Canadienne pour devenir membre d'un tel organisme.

Le Dr Rod Moran, dont le mandat

de président de l'ADC expirait à la fin du congrès, a fait remarquer qu'il ne s'agissait pas d'instituer une autre organisation de dentistes dans notre pays. Il a expliqué qu'une union avec les Américains et les Mexicains procurerait aux associations nord-américaines le droit de siéger au comité exécutif de la FDI.

Le Dr Moran a souligné que ni l'Association Dentaire Canadienne, ni l'American Dental Association n'étaient satisfaites du barème des cotisations de la FDI. Selon lui, la FDI établit les cotisations en se fondant sur le nombre de dentistes dans un pays et sur le revenu moyen de ses habitants, et non en se basant uniquement sur les dentistes. Ainsi, le Canada, les États-Unis et le Mexique procurent à la FDI au moins la moitié de ses revenus.

Le conseil d'administration reçut ensuite un exposé des événements ayant mené à la résolution visant à former un chapitre de la FDI qui représenterait les intérêts des dentistes en Amérique du Nord. Une réunion a d'abord eu lieu entre les représentants canadiens, américains et mexicains, et l'American Dental Association se déclara disposée à fournir l'aide administrative nécessaire à cette entreprise conjointe. Les Bahamas seraient également représentées au sein du groupe nord-américain. L'ADA avait également assumé les dépenses imprévues au cours des discussions, a ajouté le Dr Moran.

En définitive, on semble croire que la seule façon d'assurer à l'Amérique du Nord une voix efficace au sein de la FDI est d'instituer un chapitre séparé qui exercerait plus d'influence que les membres individuels ne le font actuellement.

"Nous estimons que la pratique de la dentisterie en Europe ne représente pas la situation qui prévaut dans cette profession au Canada, aux États-Unis et au Mexique, a déclaré le Dr Moran. "La seule façon dont les associations dentaires nord-américaines pourront vraiment exercer leurs prérogatives de membres est par l'institution d'un chapitre séparé de la FDI," a-t-il poursuivi.

Le représantant du maire de la ville de Québec avec Dr Rod Moran, président sortant de l'ADC et Dr Clément Caron, directeur du Congrès.

Le Conseil résolut donc d'approuver la résolution et le projet de formation d'un chapitre nord-américain de la FDI a été soumis, plus tôt ce mois-ci, à la réunion de 1979 de la FDI, à Paris.

MEMBRES À VIE

A la suite du débat sur ce sujet, on a résolu de remettre en vigueur la condition que toute demande d'acceptation comme membre à vie de l'ADC doit émaner du dentiste lui-même. Les postulants peuvent se procurer les formulaires de demande auprès de l'ADC et la décision d'octroyer le titre de membre à vie doit être approuvée par le conseil exécutif.

DOCUMENTATION RÉCENTE

Au nombre des dépliants publiés récemment figurent "Précautions à prendre après une chirurgie buccale mineure," "Les radiographies dentaires montrent des problèmes cachés", "Assurance dentaire — Le Guide du consommateur", et "La santé dentaire grâce à une bonne alimentation."

MEMBRES ÉTUDIANTS

Le Conseil d'administration a approuvé la recommandation du Conseil exécutif à l'effet que tous les nouveaux diplômés ayant été membres étudiants en bonne et due forme de l'ADC reçoivent le statut de membre actif de l'Association Dentaire Canadienne, à compter de la date d'obtention de leur grade jusqu'à la fin de la même année.

À la suite d'un débat quant à la définition de "membre en bonne et due forme", il a été convenu d'inclure les stipulations suivantes: "les diplômés de 1979 doivent avoir été membres étudiants pendant la dernière année de leurs études menant au diplôme; les diplômes de 1980 doivent avoir été membres étudiants . . . pendant les deux dernières années de leurs études; les diplômés de 1981 doivent avoir été membres étudiants . . . pendant les trois dernières années de leurs études; et les diplômés de 1983, et des années subséquentes, doivent avoir été membres étudiants pendant toute la durée de leurs études".

ACCRÉDITATION

Un comité de liaison, composé de quatre représentants du Conseil d'éducation et du Conseil des services hospitaliers, sera établi afin d'étudier les questions de documentation et de politique en matière d'accréditation.

Le comité s'efforcera de trouver des solutions aux problèmes éprouvés dans le secteur des programmes de formation aux niveaux du diplôme et de la spécialisation, quand l'expérience pratique est acquise dans les hôpitaux.

Les représentants du conseil des services hospitaliers sont les docteurs James Main et Mervin Gornitsky. Ceux du conseil d'éducation n'ont pas encore été nommés.

FORMULAIRE DE SANCTION ORTHODONTIQUE

Le Conseil a approuvé un formulaire standard de sanction orthodontique, déjà accepté par les sociétés et associations provinciales d'orthodontie. Certains ont exprimé l'inquiétude que le formulaire d'une page ne serait peut-être pas assez complet pour répondre aux exigences des compagnies d'assurance. À cela on a répondu qu'un formulaire semblable était déjà en usage au Québec et s'était révélé acceptable quand il portait la signature d'un orthodontiste attitré.

RÉUNION DES PRÉSIDENTS

Le Dr Moran a signalé que la réunion des présidents, tenue le vendredi 7 septembre, la veille de la rencontre du conseil d'administration, s'était bien déroulée grâce à son format particulier de débat ouvert. Bien qu'elle n'ait donné lieu à aucune résolution, la réunion s'est révélée très fructueuse en suscitant de francs échanges de vues entre l'association nationale et les représentants provinciaux. Plus particulièrement, les organes corporatifs ont mis l'ADC au courant de l'évolution de la situation des thérapeutes dentaires dans leur province respective.

Hubert Drouin, directeur général de l'ADC.

Le Journal

Le Journal de l'Association Dentaire Canadienne est désormais accessible à tous les dentistes et tous les étudiants en dentisterie au Canada

En effet, le Conseil d'administration a résolu, lors du récent congrès de l'ADC à Québec, de hausser le tirage de cette publication afin qu'elle soit à compter de maintenant dans les mains de tous les membres de la profession dentaire. Les auxiliaires pourront, quant à eux, en obtenir un abonnement sur demande. En outre, les bibliothèques, les hôpitaux, les fabriquants et laboratoires de matériaux dentaires figurent sur la liste d'envoi du Journal.

La ligne de conduite du Journal, c'est-à-dire de ne publier que des communications scientifiques inédites, continuera d'être en vigueur. D'autre part, la revue comprendra de nouvelles chroniques, telles Critiques de livres, Éducation permanente et Nouvelles du monde étudiant, afin de communiquer ainsi toute nouvelle d'intérêt aux dentistes de tous les coins du pays.

Ces modifications, ainsi que l'amélioration de la mise en page, rendront sans doute le Journal encore plus utile au monde de la dentisterie au Canada.

La résolution portant sur l'augmentation du tirage entre en vigueur immédiatement et demeurera en force jusqu'au milieu des années 80, alors qu'on réexaminera cette décision à la lumière des considérations financières qui prévaudront alors.

Le besoin d'unifier la profession dentaire

"Au moment de mon entrée en fonction, il y a un an, ma préoccupation la plus profonde était le besoin d'unifier la profession dentaire au Canada afin qu'elle soit en mesure de faire face aux besoins de l'avenir, aux difficultés et aux interventions diverses," a déclaré le Dr Rod Moran à l'occasion du lunch tenu au congrès de l'Association Dentaire Canadienne, le mois dernier à Québec, pour la passation des pouvoirs du président sortant au nouveau titulaire.

Au cours de son mandat à la présidence de l'ADC, le Dr Moran s'est efforcé de resserrer les liens entre l'association nationale et les membres corporatifs, grâce à des contacts directs avec les groupes représentant les dentistes canadiens.

"J'ai rencontré la plupart des directeurs dans les différentes provinces pour tenter de mieux définir les besoins des membres corporatifs et des dentistes individuels, ainsi que pour obtenir leur point de vue quant à l'orientation de notre association," a-t-il poursuivi.

Le Dr Moran a également parlé de sa rencontre récente avec le ministre de la Santé et du Bien-être Canada, M. David Crombie, au cours de laquelle il lui a expliqué que la profession dentaire canadienne estime que le gouvernement fédéral contrecarre sans cesse les initiatives qu'elle s'efforce de prendre.

"Le Ministre m'a assuré qu'il prendrait des mesures immédiates pour instituer des rapports efficaces avec la profession dentaire et qu'il veillerait à ce que nous soyons pleinement consultés dans la planification des programmes de soins dentaires", a signalé le Dr Moran.

Après avoir exprimé sa reconnaissance aux dentistes canadiens pour lui avoir donné l'occasion de les servir à titre de président, le Dr Moran a officiellement transmis ses pouvoirs à son successeur, le Dr Clyde Covit, de Montréal.

Dr Rod Moran, président sortant de l'ADC et M. Lloyd Bowen.

Le Dr Moran continuera d'oeuvrer au sein de l'exécutif de l'ADC à titre de président sortant. Le nouveau président élu est le Dr Gil Utas, de Grande Prairie, Alberta.

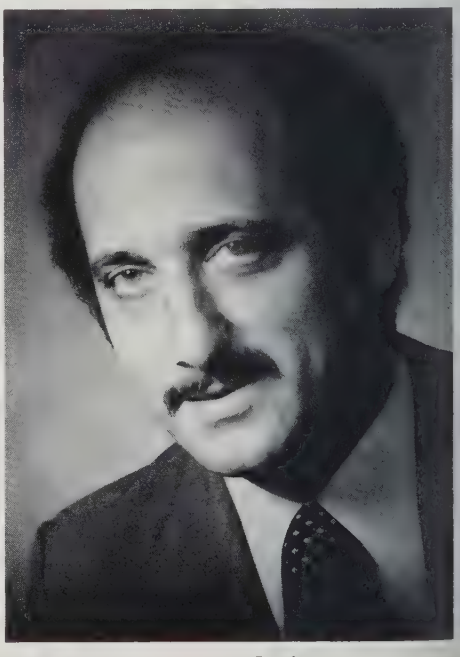
Le Dr Clyde Covit - président de l'ADC

Lors de la passation officielle des pouvoirs, qui faisait du Dr Clyde Covit le nouveau président de l'Association Dentaire Canadienne, ce dernier a poursuivi dans la même veine que son prédécesseur le Dr Moran, à savoir le thème de l'unification de la profession dentaire.

"Je vous exhorte tous, soit à titre individuel ou en qualité de membre corporatif, à oeuvrer ensemble . . . à poursuivre des communications intenses avec le siège social de l'ADC afin que nous puissions, à notre tour, partager et disséminer cette information vitale avec vous", a déclaré le Dr Covit. "Un front commun, un porte-parole vigoureux et unique, sont essentiels aux intérêts des quelque 10,000 professionnels qui forment la profession dentaire au Canada. Cette unité est la seule protection de notre profession."

Le Dr Covit a abordé les changements positifs qui se manifestent au sein de l'Association Dentaire Canadienne. Au lieu de réagir à la promulgation de politiques gouvernementales, l'ADC verra maintenant à prendre et à conserver l'initiative.

"La nouvelle attitude que nous entendons maintenir est de participer activement à la planification des programmes gouvernementaux et de veiller à ce que notre contribution, nos opinions et nos connaissances fassent partie intégrante de toute décision relative à notre profession", a souligné le Dr Covit.



Dr Clyde Covit

Le nouveau président a fait remarquer que le Dr Moran et lui-même avaient efficacement travaillé en équipe au cours du mandat du Dr Moran et qu'il se proposait de donner à cet esprit d'équipe une importance encore plus grande, en collaboration avec le président élu, le Dr Utas.

"La cause à laquelle nous oeuvrons est la haute qualité des soins de santé. À titre de professionnels, nous nous devons de veiller à l'intégrité de cette cause. Sa pierre d'assise est la conviction que le bien du patient passe avant tout. Rien ne doit entraver cet objectif, qu'il s'agisse du gouvernement ou d'une autre institution organisée. Rien ne doit priver les Canadiens du droit d'obtenir les meilleurs soins possibles de santé."

L'insistance du Dr Covit sur la ferme intention de la profession dentaire de maintenir ses propres normes sans intervention gouvernementale établit le climat dans lequel travaillera le nouvel exécutif de l'Association Dentaire Canadienne. Selon lui, grâce à la collaboration de ses collègues de tous les coins du pays, "l'ADC sera la meilleure organisation professionnelle nationale au Canada", dont les dentistes pourront à juste titre être fiers.

Un résumé - Le diastème labial

Le résumé ci-dessous décrit les points saillants de l'exposé du Dr Victor Legault, de Montréal, au congrès de l'Association Dentaire Canadienne, le mois dernier:

Depuis près de cent ans déjà, les chercheurs et cliniciens en dentisterie ont bien défini le diastème labial, en ont établi l'incidence et l'évolution et graduellement élaboré son étiologie.

Une solution chirurgicale fut d'abord apportée au problème, puisqu'on croyait avoir décelé une relation directe entre le frein de la lèvre supérieure et le diastème labial, d'où la frénectomie. Mais cette technique chirurgicale fut délaissée vers la fin des années '30 à cause de son inefficacité à corriger le diastème interincisif.

Une approche orthodontique fut ensuite pratiquée qui connut, et connait encore, beaucoup de succès dans la correction de certains diastèmes labiaux lorsque leur étiologie le permet. Enfin, une combinaison des techniques chirurgicales et orthodontiques semble donner des résultats valables dans certains autres cas de diastème labial.

Pourtant, malgré toutes ces techniques un peu compliquées, le diastème labial persiste encore chez certains enfants. En revisant la littérature, nous avons noté que certains chercheurs suggéraient la morphologie des incisives supérieures comme un facteur étiologique possible, mais sans élaborer davantage sur le sujet.

Nous avons donc tenté, à la suite de cette suggestion, de déterminer quand le facteur morphologique était responsable du diastème labial, et avec la découverte dans les années '60 de la technique de mordançage, nous y avons apporté une solution adéquate en utilisant les résines.

Donc, dans les cas de diastème interincisif où la morphologie des incisives supérieures est en cause, nous suggérons de modifier la face mésiale de ces dents par une restauration simple, hautement esthétique et permanente, afin d'éliminer le diastème.

«Un cheval de bataille politique»

"L'assurance-santé est devenue un cheval de bataille politique", déclarait le mois dernier le Dr Joseph Cappucio, président de l'American Dental Association, pendant son allocution au conseil d'administration de l'ADC, au congrès de Québec.

"Les États-Unis ne peuvent se permettre un régime national d'assurance-santé qui protège chaque citoyen à compter de sa naissance jusqu'à son dernier soupir, a-t-il poursuivi. Cette assurance contre les frais médicaux nous coûte déjà $165 milliards et, s'il fallait écouter le sénateur Edward Kennedy, elle depasserait plus de $300 milliards."

Or, selon de Dr Cappucio, on ne dépense que $11 milliards par année en soins dentaires aux États-Unis. "Les politiciens devraient apporter leur plein appui à la prévention et à la fluoration de l'eau s'ils se soucient vraiment de la santé des pauvres et des nécessiteux", a-t-il déclaré.

"L'American Dental Association favorise vigoureusement la fluoration, car nous avons pu prouver sans l'ombre d'un doute que cette mesure réduit la fréquence de la carie dentaire jusqu'à 65 pour cent".

Invité par le Conseil d'administration, le Dr Cappucio a donné son allocution le deuxième jour du congrès. Il a insisté sur la nécessité d'élaborer une approche commune en Amérique du Nord envers la Fédération Dentaire Internationale et il a qualifié le Dr Moran de "chef de file dynamique" sur la scène internationale.

Dr Joseph Cappuccio

Le président de l'ADA a terminé son allocution en exhortant les dentistes canadiens à poursuivre leurs communications ouvertes avec leurs collègues américains et à "forger des liens professionnels solides outre frontières."

Book Reviews

Shailer Peterson

Preparing to Enter Dental School

First Spectrum Edition,
Prentice-Hall Inc. 1979
Englewoods Cliffs, N.J. 07632

Preparing to Enter Dental School is a new addition to the Health Career Series of books written by the late Shailer Peterson. As former associate dean for Academic Affairs and director of Admissions for the University of Texas Health Sciences Centre, he had worked with both administration and testing agencies of most health professions. As a result, he brings forward his vast knowledge and experience in this his latest career cook book.

This book was written for the student who wants to learn more about the profession of Dentistry as a career and also about the steps that need to be taken in order to earn admission to a dental school.

The text is generally divided into four major areas:

First, What is Dentistry and Dental Education All About? This section explains some of the things that go on behind the scenes in a dentist's office. It also points out that many dentists or dentally trained persons choose some other aspect of dentistry and that not every D.D.S. necessarily treats patients. The applicant is made more fully aware of the demands of a dental program and the need to compare his or her qualifications to ensure a good match.

Secondly, the planning of a predental curriculum and preparing for dental aptitude tests is discussed. Since nearly every school has a predental curriculum, it never occurs to many applicants that predental curricula are not planned in advance. There is still a great deal of choice that can be made to tailor-make a program to fit one's particular needs. This is especially true for those who plan to earn a degree before entering professional schools. This section also makes some good recommendations on how to prepare for the DAT (Dental Aptitude Test) and advises strongly not to take the test for "practice" without making a great deal of preparation.

The third section deals with the filling of an application and preparation for personal interviews. The meeting of different deadlines with various schools and being certain that admissions committees have all of one's information when it is needed is

Dr. Walter Teteruck

emphasized. Since the last few years have seen a significant increase in the number of schools requesting interviews the author presents some advice and suggestions relative to the process.

Finally, Dr. Peterson touches on what to do when one is rejected, a most difficult subject to be sure. Assessment of the whole situation, a look at alternate careers and the making of a decision as to whether it is advisable to reapply is fully covered.

In addition to those mentioned above, there are many other topics of interest to the prospective dental student such as the role of spouse and family in decision making that are too numerous to review.

Needless to say, preparing to enter dental school today is a lot more complicated than it was 20 or 30 years ago. A book such as this is therefore a must for the aspiring dental student, his family or anyone involved in counselling for the profession of Dentistry.

Preparing to Enter Dental School was reviewed by W.R. Teteruck, B.Sc., D.D.S., M.S.D. chairman, Dental Aptitude Test Committee, and professor, University of Western Ontario.

C.E. Renson

Oral Disease

Editor. Update Publications, London, 1979.
Nine contributors. 81 pages.

According to the Preface, this short book was based on a series of articles that originally appeared in the medical journal 'Update'. The purpose of the series was to give physicians some insight into dental and oral disease on the grounds that this is a subject that receives little emphasis in most medical curricula and in some is almost completely absent. Furthermore, post-graduate courses in the field are not widely available. The editor points out that, in most western countries, the dental profession sees about half of the population on a regular basis although epidemiological studies have shown that virtually all people will suffer from oral disease at some time. This leaves a considerable amount of the responsibility for diagnosis of disease of the mouth on the shoulders of the physician.

The primary objective of the book is again to present the medical practitioner with a review of disease of the mouth and teeth, the emphasis being placed on

diagnosis but including a generally very brief coverage of the principles of treatment methods available. The authors state that the book should also be of value to dental students and practitioners, as a revision text, and to dental auxiliaries.

It is written by a group of nine distinguished authors, eight with expertise in one or other of the dental specialties and one from otolaryngology. Inevitably the style and quality of writing varies but overall the book is clearly and concisely composed and reads easily. It is divided into five major sections all but one with subdivisions. The opening section covers developmental anomalies of the teeth, soft tissues and jaws and includes a brief outline of orthognathic surgical procedures. The second section covers diseases of the teeth and supporting structures, with emphasis on dental caries and periodontal disease but also including a chapter on orthodontic disorders. The subsequent two sections are on diseases of the oral mucosa and jaws and on neoplasms. The last chapter is titled 'Looking at the throat' and describes the techniques for examination of the various parts of the pharynx, omitting any coverage of diseases of the area.

Despite the all inclusive implication in the title, the range of oral diseases covered is far from complete and it would appear that surface visibility has been the chief criterion for inclusion. Hence most mucosal disease are described while cysts, for example, are almost entirely omitted. The text is largely devoted to a description of clinical features with very little information or discussion on aetiology and pathogenesis. Essentially the book is an atlas of oral disease that are visible on clincial examination with a brief commentary on the conditions illustrated.

The material presented is accurate, brief, and in general up to date in the concepts discussed. Very few references to original studies are cited, presumably because the authors thought it unlikely that the potential readership would be likely to look these up. More citations might well have been welcomed by dental readers.

The text is profusely illustrated throughout by color photographs that are in general of excellent quality and there can be little doubt that these constitute the value of the volume for dental readers. So many of the abnormalities occurring in the mouth are fully comprehensible to the student only when there has been an opportunity to examine them clinically, but, lacking this, the best alternative at present is the color photograph and the authors have fully availed themselves of this technique. The selection of photographs published is commendable.

It would seem that the authors' aim of extending the average medical practitioner's knowledge or oral disease has been amply fulfilled. Likewise, the text would form a very useful and easily assimilated short revision course for the dentist in general practice. There can be no doubt too that the dental student would find the book informative and interesting as an adjunct to his perusal of the standard textbooks on each of the subject areas covered. As an updating or reference textbook, it should also prove useful for hygienists or other dental auxiliaries.

Oral Disease was reviewed by Dr. James Main, Journal specialty contributor, Oral Pathology, and professor, Oral Pathology, University of Toronto

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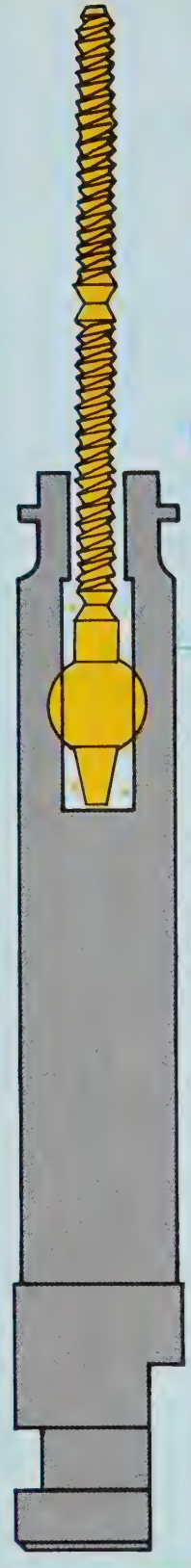

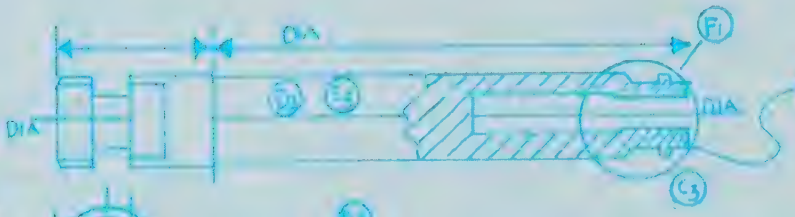

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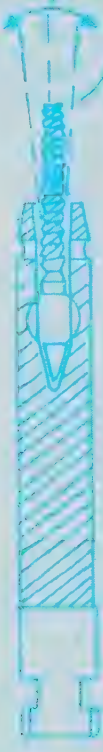

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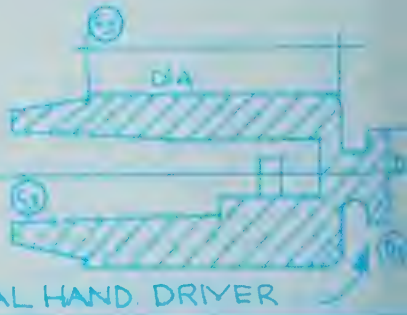

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The primary objective of this article is to present concisely and simply the procedures for obtaining biopsy, cytology and microbiological specimens — the three most useful diagnostic laboratory tests available to the general practitioner.

Diagnostic laboratory tests for dentists

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Professor and acting chirman,
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(this paper was written while Dr. Sapp was
with the University of Western Ontario)

Every general practitioner has both a personal and legal responsibility to each patient that comes to his office to establish a diagnosis or to refer the patient to someone he feels can render a diagnosis prior to initiation of any treatment.

Although the majority of the daily diagnostic procedures in the practice of dentistry involve the evaluation of the extent of caries, periodontal disease, and malocclusion, the practitioner is also presented with an array of soft tissue and bony alterations. In a few cases, the location and history of the conditions allow the practitioner to render a diagnosis that he is confident is accurate, and could if called upon, legally justify. These are few in number and include tori, exostosis, Fordyce's disease, lip pits, some congenital and developmental diseases, etc. In most cases, however, the possibility of a mistaken diagnosis based on clinical judgement alone is always present. Laboratory tests are useful. They can be used either to establish the diagnosis or to confirm a suspected one. Some of the pertinent laboratory tests readily available to dentists are: Biopsy; Exfoliative Cytology; Microbiologic Smear and Cultures; Hematologic Analysis; and Urinalysis.

Although specimens for the first three laboratory tests can be easily obtained in the office by any general practitioner, it is usually far better for the laboratory to obtain specimens for hematologic and urine analysis. Therefore, these tests will not be covered here.

The primary objective of this article is to present concisely and simply the procedures for obtaining biopsy, cytology, and microbiological specimens, the three most useful diagnostic laboratory tests available to the general practitioner. These procedures take very little chair time but can be of immense aid in determining correct treatment for the patient.

BIOPSY

Biopsy is the removal of a sample of tissue from a living individual so that its cellular components may be examined microscopically. It is usually the most useful and accurate diagnostic tool available to the practitioner after the lesion has been viewed clinically. In addition to obtaining a description of the cellular composition of the tissue, it is sometimes possible to obtain, from the same tissue specimen, information relative to the chemical nature of any acellular material being produced by the cells and an indication if an unsuspecting mycotic, viral or bacteriological infection is present. Verification of the exact identity of the micro-organisms usually requires that microbiologic specimens also be collected as outlined in a later section.

Although the biopsy is mainly important in establishing the diagnosis, it also provides valuable information in determining the prognosis and the type of treatment necessary. The importance of biopsy not only applies to potentially malignant lesions. Biopsy can be equally

The fact that the most publicized use of the biopsy has been for the detection of cancer has, on occasion, been detrimental to the procedure being more fully utilized.

useful in the diagnosis and management of non-neoplastic conditions or in the evaluation of unsuccessful conservative treatments. For example, by submitting the tissues obtained from an apicoectomy after root canal therapy has failed, it may be possible to determine if the periapical lesion that did not respond was in fact a cyst or a granuloma and whether the death of the pulp occurred secondary to an unsuspecting intrabony or general systemic condition.

The fact that the most publicized use of the biopsy has been for the detection of cancer has, on occasion, been detrimental to the procedure being more fully utilized. Some dentists are reluctant to use the term because they feel that in suggesting a biopsy some patients will fear they already have a malignancy. These dentists either avoid biopsy altogether or limit its use to obviously malignant lesions.

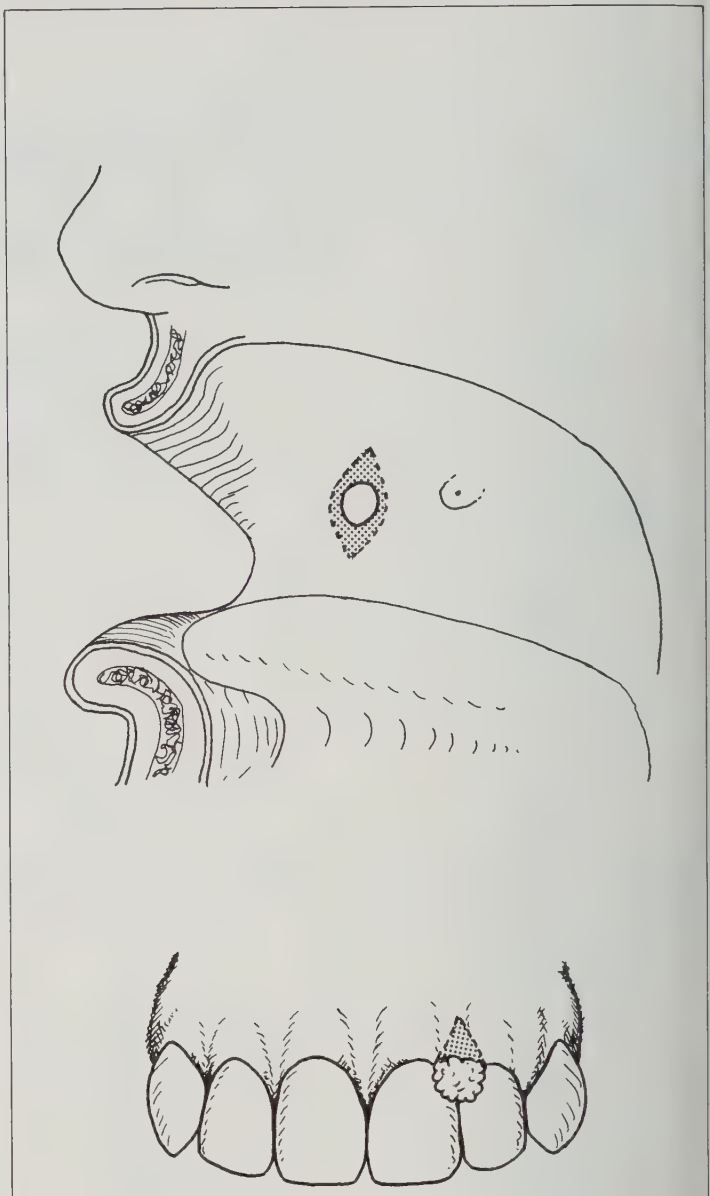
If dentists wish to fully utilize the biopsy even in apprehensive patients, they should substitute other terms such as "obtaining a tissue sample for microscopic examination" or "requiring tissue for laboratory analysis." In most cases, the use of these phrases, with an explanation, should be sufficient to indicate that the procedure is useful and necessary to properly manage a condition, without implying that a malignancy is suspected.

INDICATIONS FOR BIOPSY

1. When after a careful clinical examination of any alteration from normal, it is not possible to positively identify the condition.
2. To determine the exact histologic nature of all leukoplakias, speckled leukoplakias, and erythroplakias of the oral soft tissues.
3. To evaluate all chronic ulcerations and soft tissue enlargements that do not quickly respond to the correction of an irritation.
4. To identify the true nature of any intraosseous lesion not readily apparent from a radiograph.
5. To determine the nature of a clinically diagnosed lesion that fails to promptly respond to recognized forms of therapy.
6. To screen all abnormal tissues removed from the oral cavity including granulomas, cysts, and dental follicles around impacted teeth for the presence of unsuspected disease processes.
7. To confirm the existence and the nature of a clinically apparent malignancy so that treatment may be undertaken immediately.

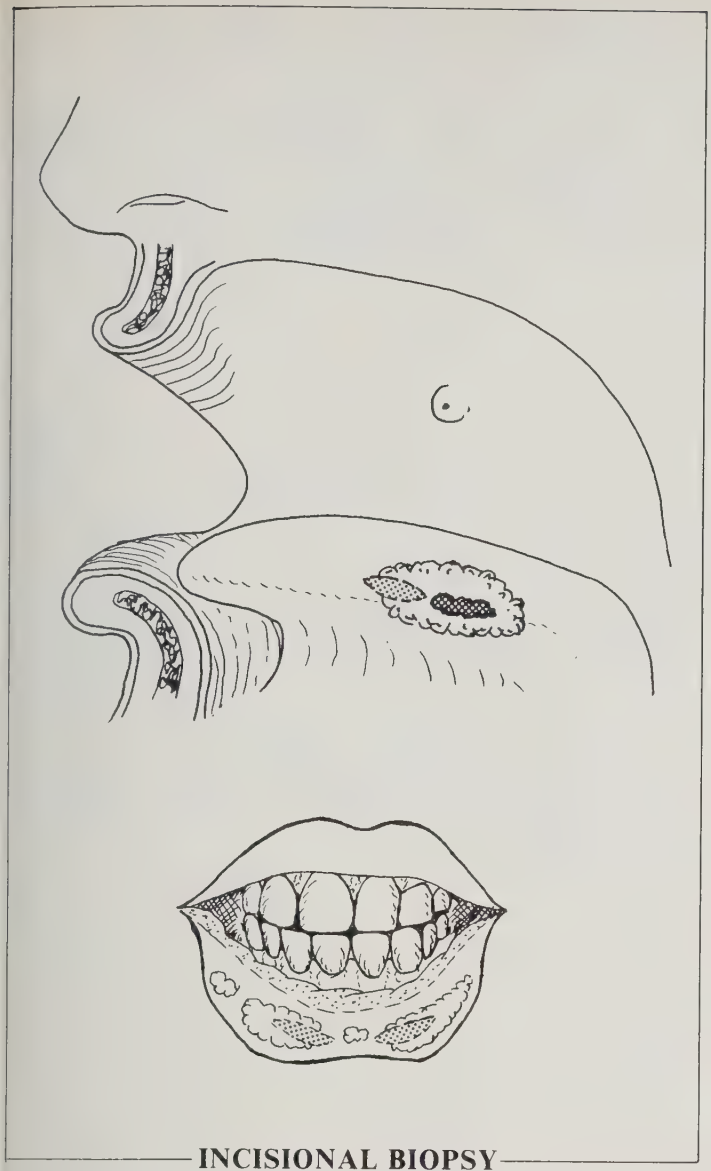
TYPES OF BIOPSY

There are five types of biopsy: Excisional; Incisional; Intraosseous; Aspiration; and Punch.



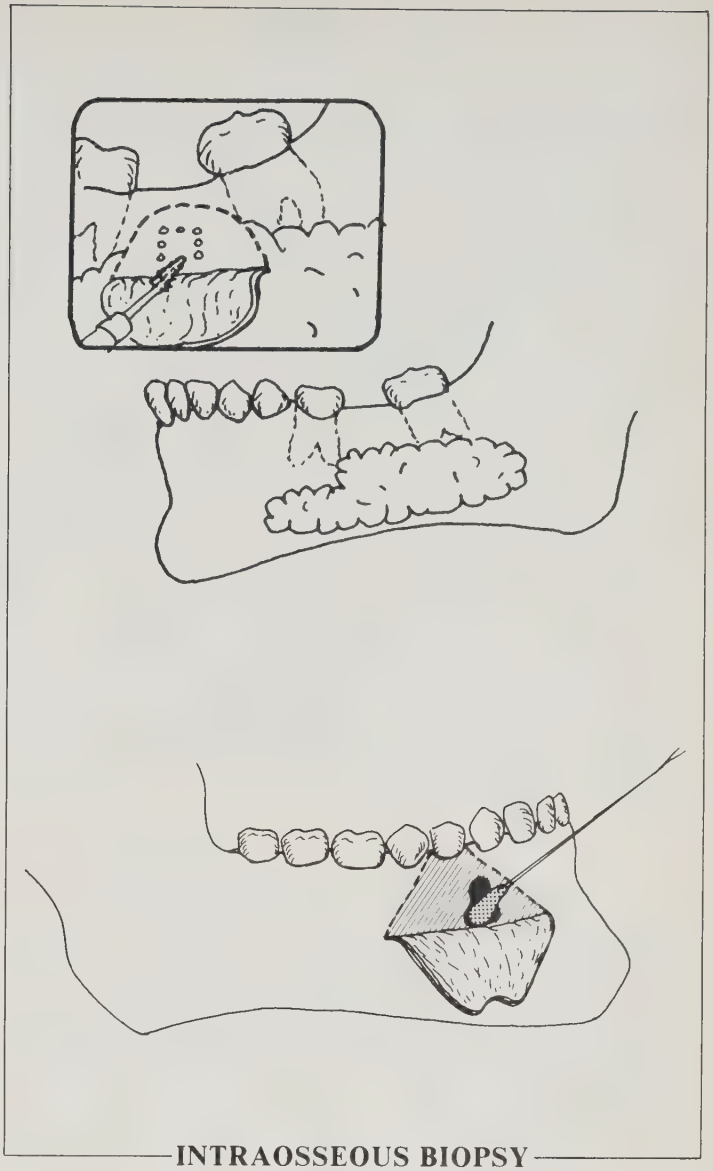
EXCISIONAL BIOPSY

This type of biopsy is indicated when the lesion is relatively small (less than 1 cm.), sessile or pedunculated, circumscribed and freely moveable, and located above the mucosa or just beneath the surface. The excisional biopsy provides for both the diagnosis and the treatment in one procedure. It is not indicated if the lesion is large and diffuse (greater than 1 cm.), looks and feels malignant, or is part of the surface projection of a larger, more extensive submucosal lesion. If the lesion is large or extends deeply into surrounding structures so that total removal with a small margin of normal tissue cannot be obtained easily with a local anesthetic, an incisional biopsy is indicated.



INCISIONAL BIOPSY

This procedure is indicated when an excisional biopsy is not possible because the lesion is widespread or requires a more involved surgical procedure for removal than the excisional biopsy would allow. Since this technique requires procuring a representative section of tissue from the altered areas, the selection of the actual site for the biopsy is of considerable importance. It is usually best to select a site away from an obvious ulceration or area of necrosis as these are usually areas of intense inflammation which make interpretation of the tissue difficult. If the condition to be diagnosed appears to be a dermatologic or vesicular-bullous condition, a site containing one or more vesicles, or an area of hyperkeratinization, or atrophy on an erythematous background is preferred over an area containing erosions and ulcerations. If the lesion appears to be either a benign or malignant growth, the most diagnostically useful tissue sample will be from the periphery. Tissue from this area will provide both reliable information regarding cell type and an indication if the lesion has an infiltrative behaviour. Both of these aspects are important in determining the type of treatment and the prognosis. In some cases, it is necessary to obtain an incisional biopsy from more than one site to ensure a representative piece of tissue is submitted for laboratory evaluation prior to initiation of treatment.



INTRAOSSEOUS BIOPSY

This procedure is generally less frequently performed by the general practitioner than the soft tissue biopsy. It may be in the form of an exploratory curettement in which representative tissue is obtained to help determine the nature of a large irregular radiographic alteration, or it may be an excisional enucleation in the case of an accessible small well circumscribed lesion. The decision regarding which procedure to pursue is made after a careful clinical and radiographic evaluation. Any practitioner who performs a mucoperisosteal flap for extraction, periodontal treatments or apicoectomy can easily undertake this useful diagnostic procedure. Once the bone has been exposed a small square of the cortical plate is removed and the exposed underlying lesion is either removed completely (excisional biopsy) or partly (incisional biopsy) depending upon its size and nature.

ASPIRATION BIOPSY

This procedure is used to obtain information about the nature of the fluid content of a large, deep seated, relatively inaccessible soft tissue mass or an intraosseous cystic lesion. It may be used either alone or prior to one of the other biopsy procedures. It is performed by inserting a large gauge needle into the lesion to the desired depth and exerting sufficient negative pressure on the plunger of the syringe to obtain a fluid sample.

PUNCH BIOPSY

Although commonly mentioned as a possibility this form of biopsy is rarely necessary in the oral cavity since most areas are easily accessible with the more appropriate excisional or incisional biopsy procedures. It is used more frequently during screening procedures when the ideal clinical facilities that are found in a dental office are not available. The procedure consists of rotating a sharpened hollow tube of several millimeters in diameter until the underlying muscle or bone is reached. The tissue is then removed in the same manner as in the excisional or incisional biopsy procedure. To be of any use, the lesion must be uniform in appearance, not very large, and adjacent normal tissue not required. It does not really offer any advantage over either of the previously mentioned techniques in a regular office setting but some practitioners prefer it because they do not need to use a scalpel, only surgical scissors.

With this technique, the surgical defect is very small and in many cases does not require suturing. Unfortunately, the resultant tissue specimen is also small and frequently superficial and fragmented making an accurate laboratory interpretation difficult. It is not uncommon that another biopsy is requested prior to the laboratory rendering a diagnosis.

INSTRUMENTS AND MATERIALS

Excisional and Incisional Biopsy
Local anesthetic with vasoconstrictor and syringe
Scalpel holder (#3) and blades (#12 or #15)
Pointed surgical scissors
Tissue forceps
Surgical hemostats (2-3)
Sterile sponges
Curved needle and sutures (4-0)
Needle holder
Wide-mouth bottle containing 10 per cent formalin
Submission form
Mail-in container

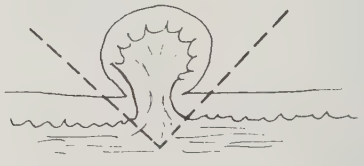
Intraosseous Biopsy
Periosteal elevator
Bone bur
Curette

Aspiration Biopsy
Large syringe (10-20cc) and large gauge needle (16-18 gauge)

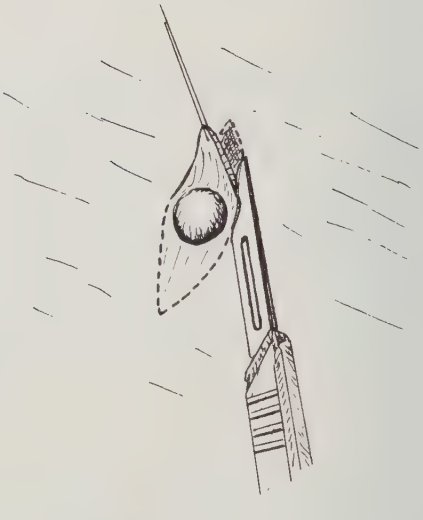
PROCEDURES

Excisional Biopsy

1. Anesthetize the lesion with a 2 per cent local anesthetic containing a vasoconstrictor. Local infiltration **around** the lesion is preferred. Care must be taken not to inject directly into the lesion to be removed.



2.
With the scalpel, make an elliptical incision on either side of the base of the lesion so that the incision lines intersect. While making the incision line, it is helpful if the blade is angled at approximately 45° toward the center of the lesion making the deep base of the lesion and underlying connective tissue narrower than the surface.



3.
Outward tension is placed on the lesion by means of a suture or with tissue forceps attached at the edge of the specimen. Care must be taken not to crush the lesion. The specimen is now gently dissected out with either a scalpel or a pair of surgical scissors.

4. The tissue must be immediately submerged in the 10 per cent formalin solution.

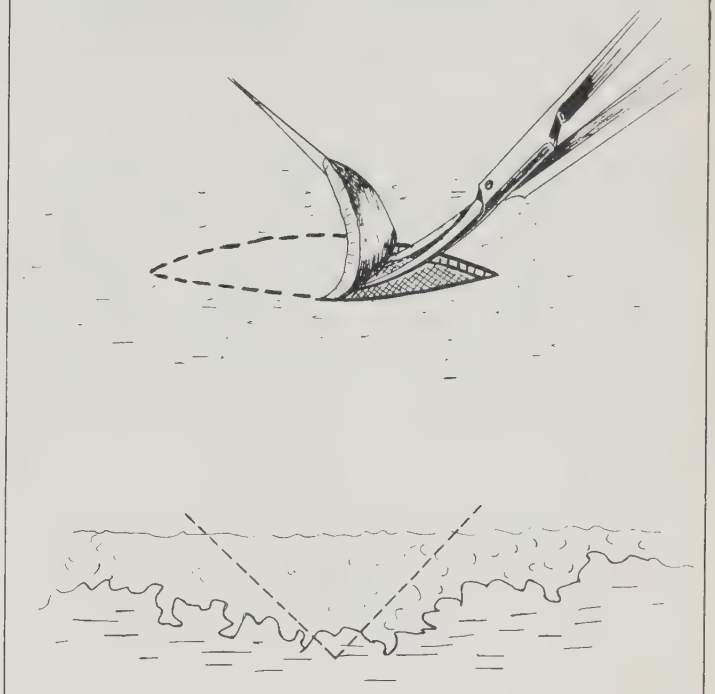
5.
The surgical site is closed with either silk or resorbable sutures placed approximately 5 mm apart.

6. The patient is requested to return in approximately one week for removal of any sutures that have not resorbed or fallen out. At this time the surgical site is checked to ensure that normal healing has taken place.

Incisional Biopsy

1. Carefully observe and palpate the lesion so that a decision can be made regarding the appropriate site or sites that will produce one or more representative specimens.
2. The tissue **around** the specimen is infiltrated with a 2 per cent local anesthetic containing a vasoconstrictor. Care must be taken not to infiltrate into the proposed specimen. This can often be done by inserting the needle fully just beneath the surface along either side of the proposed specimen and slowly withdrawing the needle as solution is deposited. This frequently is less irritating to the patient than making multiple injections around the periphery.

3.
With the scalpel, make an elliptical incision encompassing the selected area of the lesion. The incisional lines must be deep enough to include underlying connective tissue to the level of muscle or bone. Such a surgical site is much easier to close with sutures and heals much more efficiently than a superficial removal which requires excessive stretching of the adjacent edges of the epithelium to achieve closure.



4.
After the specimen is outlined with the scalpel a suture is inserted through the end that extends onto normal tissue and an upward tension is applied while the tissue sample is dissected out. If the original incision lines are deep enough, this can be easily accomplished with a pair of curved surgical scissors. If the lesion extends deeply into the underlying tissue, it is better removed with a scalpel angled at 45° so that a deep wedge of tissue may be procured.

5.
The surgical defect is closed in the same manner as is used for the excisional biopsy.

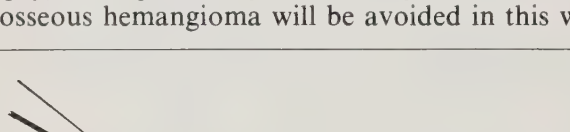
Intraosseous Biopsy

1. After correlating the radiograph with the overlying anatomical structures, the site of the mucoperiosteal flap is selected. The flap is designed so that the main source of the blood supply is from the base. The flap need not be large but must allow ample visualization and accessibility for further procedures.
2. Anesthesia to the area is usually accomplished by a block injection to the area and with a local infiltrate to cover the accessory soft tissue innervation. A two

Some dentists are reluctant to use the term because they feel that in suggesting a biopsy some patients will fear they already have a malignancy.

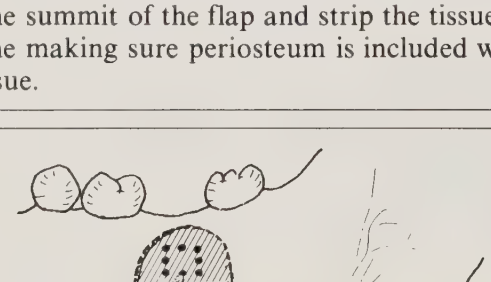
per cent anesthetic solution with a vasoconstrictor is again indicated.

3. If the lesion is large and appears to be approaching the cortical bone at an accessible point, prior aspiration of some of the contents is advised to help predetermine the nature of the lesion (see aspiration biopsy). The possibility of entering into the rare intraosseous hemangioma will be avoided in this way.



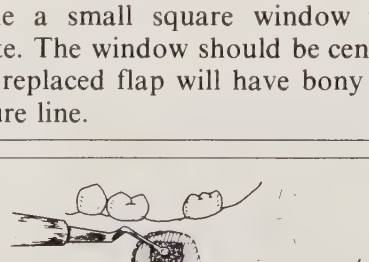
4.

With the scalpel pressed firmly down to cortical bone, outline the flap. Using a periosteal elevator, start from the summit of the flap and strip the tissues from the bone making sure periosteum is included with the soft tissue.



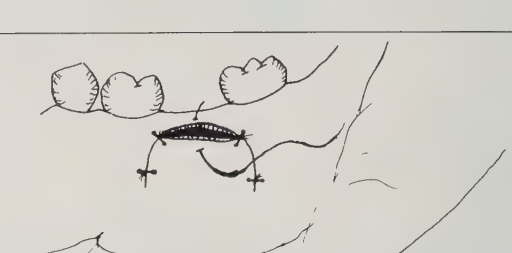
5.

Using a small bone bur in low speed drill with water spray, make a small square window through the cortical plate. The window should be centrally placed so that the replaced flap will have bony support under the suture line.



6.

Remove the cortical plate of bone and with a curette obtain deep samples of the underlying lesion. Immediately place **both** the cortical plate and the deep curettements in 10 per cent formalin for submission to the laboratory.

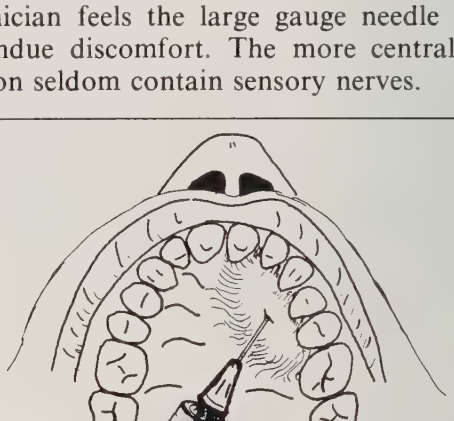


7.

The surgical site is closed by replacing the flap and securing it in place with sutures placed approximately 5 mm apart.

Aspiration Biopsy

1. The lesion is palpated to determine the texture and the location of an area that is very near to the surface. If it is an intraosseous lesion, the area closest to the surface may be determined radiographically.
2. For most lesions, little or no anesthetic is required. Occasionally a topical anesthetic may be useful if the clinician feels the large gauge needle may produce undue discomfort. The more central areas of the lesion seldom contain sensory nerves.



3.

After the location and the angulation of the needle is determined, it is inserted firmly into the lesion to the desired depth and negative pressure is exerted on the plunger of the syringe until several milliliters of fluid are withdrawn.

4. If the lesion is composed of solid tissue or compact desquamated cells, the barrel will remain empty with negative pressure. When the lesion is cystic in nature the withdrawn fluid will be yellowish in colour. Occasionally, the fluid will be red and it must be determined if the material is blood-tinged cystic fluid or real blood. This can be accomplished by allowing the syringe to stand in an upright position. If it is blood, it will clot producing approximately 50 per cent serum. If it is blood-tinged fluid, the red blood cells will settle to the bottom as a very small percentage of the total volume.

Even the most ardent proponents of the use of exfoliative cytology for the detection of oral malignancies do not feel it should be used in any situation in which a biopsy could be performed just as well.

THINGS TO REMEMBER ABOUT BIOPSY

1. Always submit an adequate history including the name, address, age, sex, and occupation of the patient.
2. Always submit an adequate description of the lesion including location, size, duration, color, consistency, symptoms, and clinical course.
3. If available, submit pertinent radiographs which will be promptly returned, other laboratory findings, results of previous biopsies, and previous treatments to the lesion.
4. Avoid electrocautery particularly on small lesions and incisional biopsies. If bleeding is a problem, electrocautery may be used in the surgical site after the specimen has been removed.
5. Immediately place the specimen in a bottle containing 10 per cent formalin making sure the bottle is closed tightly prior to mailing. A piece of tape around the junction of the lid and the bottle will ensure that the lid does not vibrate loose during tansit.
6. If 10 per cent formalin is not available, 70 per cent alcohol may be substituted although it is generally less desirable. Fixation in alcohol is sometimes desirable to prevent freezing artefacts in tissues during the winter months when the specimen is to remain in outside mailboxes during sub-freezing temperatures.
7. Place the patient's name on the bottle *as well as* the submission form. If two specimens are submitted from the same patient, place them in two different bottles appropriately labelled or, tag one piece of tissue with a suture and identify it on the submission form.
8. Avoid distorting the tissue specimen during removal by clamping with a hemostat, cutting through or injecting into it. Such procedures alter the tissue architecture making interpretation difficult.
9. A narrow but deep specimen is always preferable over a shallow and broad specimen. In addition to providing adequate tissue for diagnosis, the surgical site of the deeper lesion heals more readily.
10. To facilitate the orientation of the specimen in the laboratory, place the specimen on a piece of heavy paper. The tissue is placed in a straight line with the connective tissue contacting the paper. After one minute the paper with the attached specimen is gently placed into the bottle containing the 10 per cent formalin.

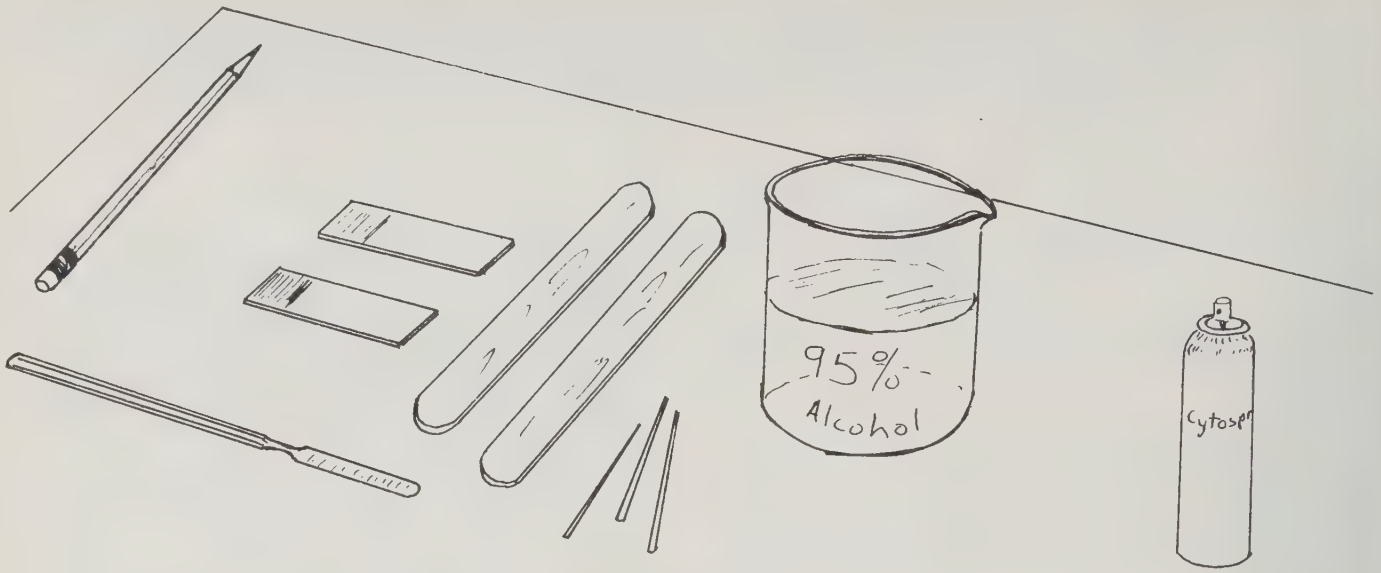
EXFOLIATIVE CYTOLOGY

Exfoliative cytology is a diagnostic procedure which prematurely removes the superficial cells that come to the surface of the epithelium prior to their natural exfoliation. The cells are spread on a glass slide, fixed and submitted to a laboratory for evaluation of their cytologic features.

The rationale for the utilization of this technique as a diagnostic tool is based on the knowledge that epithelial cells are formed in the deeper layers and gradually come to the surface where they are exfoliated. It is assumed that any alterations in the nuclear and cytoplasmic features of the cells occurring in the deeper layers will be evident in easily obtainable superficial cells. Although this is usually the case, recent studies have shown exceptions are frequent enough to minimize its reliability when used for the detection of epithelial malignancies. Occasionally, deeper cells will have undergone malignant change and are actually beginning to invade underlying connective tissue while cells on the surface do not exhibit sufficient morphologic changes to allow detection of early malignancy. Such a diagnosis has been termed a "false negative" and can lead to a false sense of security on the part of both the clinician and the patient. Although the reported incidence of false negatives has varied from study to study, it is consistently high when the technique is used on lesions that are markedly keratinized, crusted or necrotic. Even when the ensuing cytology report is positive, it should be pointed out that no treatment is begun until the type and extent of lesion has been confirmed by biopsy. Even the most ardent proponents of the use of exfoliative cytology for the detection of oral malignancies do not feel it should be used in any situation in which a biopsy could be performed just as well.

INDICATIONS FOR EXFOLIATIVE CYTOLOGY

1. As a compromise on those rare occasions when a patient refuses a biopsy.
2. As a means of follow-up for recurrences in patients who have had radiation therapy for lesions that were superficial or adjacent to bone.
3. In place of biopsy when dealing with extremely debilitated or other patients who pose a healing problem or are a surgical risk.
4. As an aid in the diagnosis of some dermatologic diseases such as pemphigus vulgaris, white sponge nevus and some of the anemias.
5. To analyse the cells found in the fluid of oral vesicles for evidence of viral induced changes.

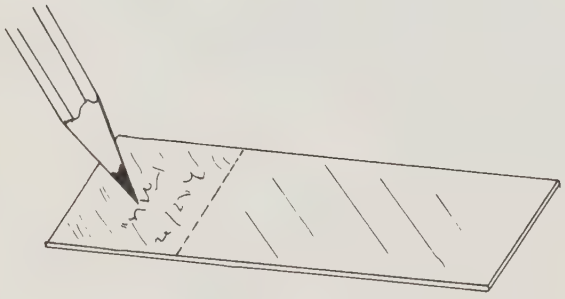


INSTRUMENTS AND MATERIALS

Glass microscopic slides (frosted ends)
Lead pencil
Cement spatula or wax carver
Wooden tongue depressors
Toothpicks
Canister of Cytospray®
95% isopropyl or ethyl alcohol
Submission form
Mail-in container

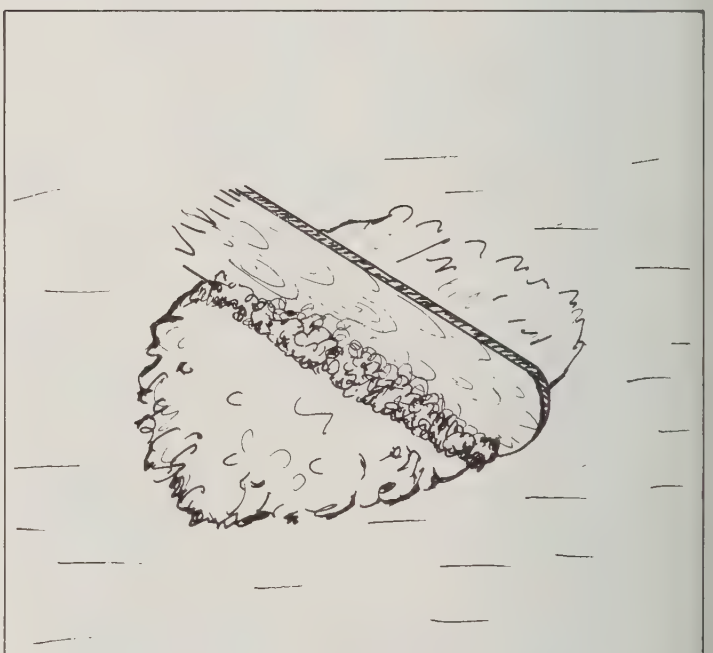
PROCEDURES

1. Use one or two slides for each site to be sampled.

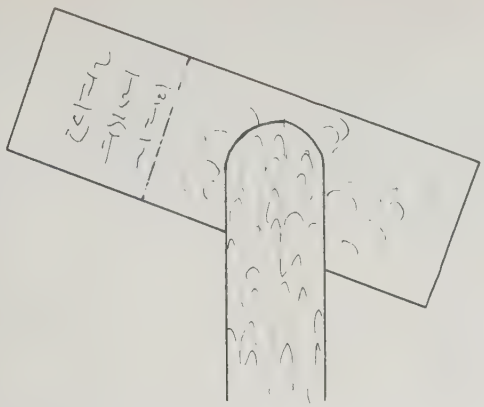


2.
With a **lead** pencil, print the patient's name, the date, and the site of the lesion on the frosted end of the glass microscopic slides. Other writing material will dissolve during ensuing laboratory processes.

3. The fixative that is to be placed on the slide is made readily available as it must be immediately placed on the smear before drying takes place. If a canister is being used it should be shaken and tried and if 95 per cent alcohol is to be used, make sure a dropper is available.
4. Select the exact sample site carefully. Be sure that the cells being removed are not those from highly keratotic, crusted or necrotic tissues.
5. The instrument selected to remove the superficial cells must have a square edge with a contour sufficient to scrape off a superficial layer of cells. In some cases, a square-edged cement spatula or wax carver will do while in others, the edge of a wooden tongue depressor that has previously been moistened in water is appropriate. When the lesion is very small, the blunt edge of a toothpick is effective.
6. Although most lesions need no preparation prior to scraping, occasionally some will be covered with a viscous mucin, exudate or blood. This material can be gently removed with an air syringe or a wet sponge, being careful not to remove or dry superficial cells.



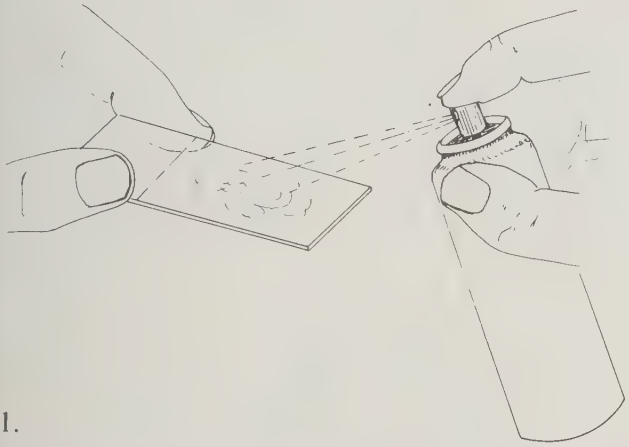
7.
With the tissue stretched, the squared edge of the collection instrument is positioned at the back of the lesion and is firmly brought forward with pressure, one or more times, until a visible milky material has been collected.



8.

The collected material is quickly placed on the centre one-third of one of the previously marked slides and immediately spread into a thin smear. All clumps and thick layers of cells should be carefully spread out as they are lost for interpretation in this form.

9. Whenever possible, a second smear should be made. This is particularly true when there are ample amounts of easily obtainable superficial cells. The second labelled slide can be inverted over the initially deposited material on the first slide, pressed together and moved around until a thin film has been produced on both slides. In other cases, when the material is scanty, a second slide is obtained by re-scraping the same area or scraping a different area of the same lesion.
10. The smeared slide must be quickly covered by fixative before any drying of the unfixed cells has taken place. Drying prior to fixation causes severe distortion of cellular detail whereas drying after fixation is not harmful.



11.

The material on the slide can be fixed by flooding the slide with a package or canister of commercially available cytology fixation. The fixative should remain in contact with the cells for 20 to 30 minutes. If these are not available, 95 per cent isopropyl or ethyl alcohol may be dropped on the slides until fixation takes place. Some have found commercial hairspray is also satisfactory.

12. Prior to mailing, the slide with the fixed material on it, is air dried. Special care should be taken not to let objects contact the smeared surface and to protect it from dust and other foreign material.
13. Slides should be mailed in specially designed containers. Care should be taken to fill in the history and other required information on the submission form.

THE REPORT OF THE CYTOLOGIC SMEAR

Unsatisfactory

This usually means that sufficient cells were not present on the slide or it is not the type of lesion that lends itself to this diagnostic test. Other reasons include drying of cells before fixation or only blood or a purulent exudate was obtained. Another attempt at obtaining an adequate smear may be tried but usually an unsatisfactory smear indicates that the lesion is unsuited for this diagnostic test and should be reconsidered for excisional of incisional biopsy.

Negative

This indicates superficial cells sampled do not exhibit any morphologic features of malignancy. Since the deeper cells were not necessarily sampled, the possibility remains they could be abnormal. This is particularly true in keratinized, white lesions where the incidence of false negatives is high.

Atypical

In cytology, this term indicates the cells contain features that are not seen in a normal state. Many factors other than malignancy may cause them — such as bacterial, viral and fungal infections, or inflammation caused by chemical and physical injuries. Some reports grade the severity of the atypical changes as slight, moderate, or severe and do not use the ensuing terms of Suspicious and Highly Suggestive. If the clinician wishes more definite information regarding the actual nature of the lesion, a biopsy is necessary.

Suspicious

This indicates some cells exhibit some kinds of change seen in malignant cells but not enough cells exhibit changes or they are minor. A biopsy is necessary for diagnosis.

Highly Suggestive

This category is used by some, but not all, laboratories and indicates sufficient numbers of cells exhibit many prominent features of malignancy but not enough to be conclusive. A biopsy is necessary for diagnosis.

Positive

This designation indicates the degree of change, and the number of cells containing the changes, are such that the pathologist is highly confident a malignancy exists. Since no treatment can begin until the type and extent of malignancy is known, a biopsy still must be performed. The lesion may still be confined within the basement membrane (in-situ) and the possibility of a false positive must be eliminated.

MICROBIOLOGIC SMEARS AND CULTURES

These diagnostic procedures are used either alone or in conjunction with the biopsy or cytology smear to confirm the presence and identity of micro-organisms present in a lesion. The smear is carried out in much the same manner as for exfoliative cytology except the specimen is fixed with heat rather than alcohol prior to laboratory analysis. In these tests, the micro-organisms are diagnosed by their morphologic appearance and staining properties. In many instances this is sufficient to determine whether a fungal, bacterial, or viral infection is present and, in the case of non-viral micro-organisms, to determine their morphologic grouping. When more precise information regarding the identity of the micro-organisms is required, a specimen of the lesion must be grown in culture and subsequently selectively sub-cultured to reveal the specific metabolic capabilities of the micro-organisms. This test requires that the specimen arrive at the laboratory in a fresh state and without delay. It is therefore difficult for laboratories to offer a reliable service for specimens requiring culture on a mail-in basis. Many micro-organisms will not survive prolonged exposure of below body temperatures even if submitted in an innoculated slant media tube. Because of this, service for culture specimens is usually confined to an area in close proximity to a microbiologic laboratory. Since the antibiotic sensitivity test also requires a fresh specimen be transported to a laboratory, its use on a mail-in basis is also limited.

INDICATIONS AND USES

1. To determine if infective micro-organisms are present in a lesion.
2. To determine the specific nature of the micro-organisms in an infection.
3. To aid in the selection of the most appropriate antibiotic to deal with a particularly severe and resistant infection.
4. To evaluate vesicular lesions of the oral mucosa for the presence of the specific cytopathologic effects of viral organisms on epithelial cells.
5. To detect the presence and extent of a fungal infection.

INSTRUMENTS AND MATERIALS

Smears of Surface Lesions
Glass microscopic slides (frosted ends)
Lead pencil
Wooden tongue depressor, toothpicks, etc.
Sterile swabs
Open flame
Mail-in container
Submission form

Smears of Deep Lesions
(In addition to the above)
Aspiration syringe
Large gauge needles (18 gauge)
Scalpel with #11 blade.
Sterile distilled water

Cultures of Surface or Deep Lesions
Sterile transport tubes and stoppers — either:
a) empty
b) with self-contained moisture ampule
c) with standard slant transport medium
d) with Sabouraud or corn-meal slant medium
Microstix®-Candida test kit
Sterile swabs
Submission form

PROCEDURES

SURFACE SMEARS

For Candidiasis

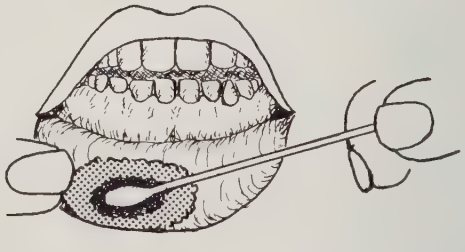
The surface smears for *Candida albicans* and viral infections are prepared in the same manner as outlined for exfoliative cytology. These fungal micro-organisms are usually confined to the superficial layers of the oral epithelium and thus a firm superficial scraping will usually collect the infected cells. Microscopic slides should be prepared from several different areas. An indication on the submission form that a Candida infection is suspected is necessary so that the smears will receive the special stains necessary for identification.

For Virus Infections

An area of altered mucosa is selected which contains intact and recently ruptured vesicles. If the area is extremely sensitive, it may be necessary to apply a topical anesthetic prior to scraping the area. The smeared microscopic slides should always be accompanied by a submission form that indicates a viral infection is suspected clinically.

For Bacteria Identification

1. Select a deep ulcer containing necrosis and purulent exudate.
2. Prepare one or more slides by marking the patient's name and location of the lesion on the frosted end with a lead pencil.



3. With a sterile swab, touch **only** the area of exudate to be sampled, otherwise the swab will be contaminated with commensal organisms.

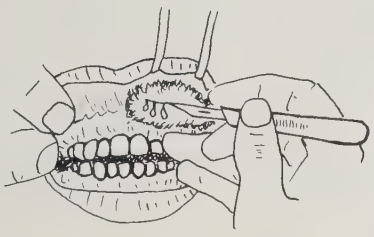
4. The exudate is thinly spread on the slide. If it is very thick, it may have to be diluted with a drop of sterile distilled water.

5. The slide is allowed to air dry and is then fixed by passing it quickly through an open flame several times being careful not to overheat the slide.
6. The slide is immediately placed in an enclosed plastic container and submitted to a micro-biologic laboratory along with the submission form. Care should be taken that the dried specimen is not left in the open where it may become contaminated with air-borne micro-organisms.

DEEP SMEARS

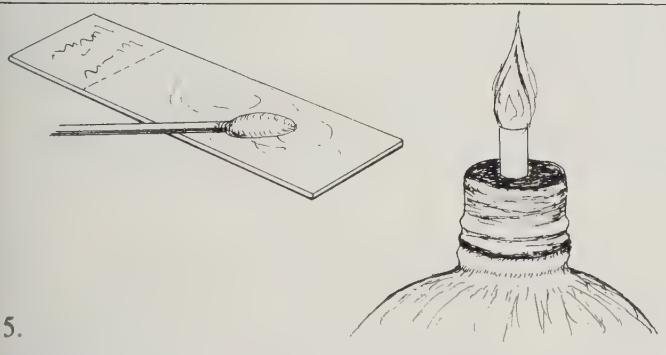
For Bacteria (including actinomyces)

1. Several microscopic slides are marked with the patient's name, site, and date prior to obtaining the specimen.
2. The specimen is obtained from either the exudate of a stab incision or from the aspirated exudate obtained with a syringe.



3.
A stab incision is performed if the deep swelling appears to be approaching the surface in one or more areas. In addition to providing a specimen sample, it allows the lesion to drain.

4. In the deeper lesions a specimen is obtained by inserting a syringe to varying depths and in various directions beneath the surface. In each location, negative pressure is exerted on the plunger in an effort to aspirate the exudate. Care must be taken not to completely withdraw the needle and re-enter the tissues and not to move the infected needle into disease-free tissues.



5.
A small drop of the exudate obtained from either the incision and drainage site or the aspirate is smeared on one or more microscopic slides, diluting if necessary, to obtain a thin smear. The slide is fixed by passing it through a flame several times prior to submission being careful not to overheat the slide.

6. If actinomyces is suspected, all remaining exudate should also be submitted so that it may be examined for the presence of "sulfur granules".

CULTURES

1. The greatest danger to the preservation of viable micro-organisms enroute to the laboratory is the lack of moisture and a prolonged below body temperature. Thus the specimen must reach the laboratory within hours of being removed from the host environment. The presently available methods for obtaining and transporting a specimen for culture are not suited for a mail-in service. They may be useful only if direct transportation is available.
2. One or more suitable sterile transport tubes should be available, preferably containing a moisture ampule or a slant-agar medium if anaerobic organisms are suspected.
3. The specimen is usually collected at the same time as a surface or deep smear since both are required to properly identify the organisms.
4. If a *Candida albicans* infection is suspected, a Sabouraud or corn-meal solid transport medium should be used in place of the standard slant transport medium.
5. Care should be taken not to contaminate either the swab or needle with commensal organisms while obtaining a specimen of the lesion.
6. The swabs or needles may be dropped directly into the sterile transport tube or plunged into the solid medium and quickly stoppered.
7. If the specimen is a swab of a suspected Candida infection, it is spread over the surface of the Sabouraud medium.
8. A regular bacteriologic smear should always be performed at the time of the culture and also submitted.
9. Recently a prepackaged miniaturized culture system for the detection of *Candida albicans* micro-organisms in vaginal specimens (Microstax®-Candida) has been tested for use in the oral cavity and found acceptable. It can be performed and evaluated in a dental office provided the small plastic pouch with its enclosed test strip can be kept at 37°C for 24 hours. This system saves time in arriving at a diagnosis when it is positive. On the other hand, if the condition persists when the test strip is negative, a smear and laboratory culture of the lesion will still be necessary.

REGIONAL ORAL DIAGNOSTIC LABORATORIES

During the preparation of this article, all Canadian dental schools were asked to prepare a list of the laboratory services which they offered and whether mail-in kits were available upon request. At that time, not all dental schools were offering laboratory services and some were in various stages of being developed. Since the dental schools offering services have personnel with specialized training in the diagnosis of the diseases of the oral cavity, it is strongly recommended that a regional dental faculty be contacted before seeking these services elsewhere.

The following is a table of the oral diagnostic laboratory services offered:

ATLANTIC REGION	LABORATORY SERVICES OFFERED	MAIL-IN KITS AVAILABLE BY REQUEST
Division of Oral Pathology Faculty of Dentistry Dalhousie University 5981 University Avenue HALIFAX, N.S. B3H 3J5	a) Oral Biopsy b) Exfoliative Cytology	a) Oral Biopsy b) Exfoliative Cytology
QUEBEC		
Oral Pathology Laboratory Laval Dental School Pavillon Comtois #4436 Laval University, Ste. Foy QUEBEC CITY, P.Q. G1K 7P4	a) Oral Biopsy b) Exfoliative Cytology	a) Oral Biopsy b) Exfoliative Cytology
Oral Pathology Service Department of Pathology Montreal General Hospital MONTREAL, P.Q. H3G 1A4	a) Oral Biopsy b) Exfoliative Cytology	a) Requisition Forms b) Requisition Forms
ONTARIO		
Oral Pathology Laboratory Faculty of Dentistry University of Toronto 124 Edward Street TORONTO, Ontario M5G 1G6	a) Oral Biopsy b) Exfoliative Cytology	a) Oral Biopsy b) Exfoliative Cytology
Oral Pathology Diagnostic Service Department of Pathology Faculty of Dentistry The University of Western Ontario LONDON, Ontario N6A 5C1	a) Oral Biopsy b) Exfoliative Cytology	a) Oral Biopsy
MANITOBA		
Department of Oral Biology Faculty of Dentistry The University of Manitoba 780 Bannatyne Avenue WINNIPEG, Manitoba R3E 0W3	a) Oral Biopsy b) Microbiologic Service being developed	a) Oral Biopsy
SASKATCHEWAN		
Tissue Biopsy Diagnostic Service Department of Oral Biology College of Dentistry Room B607-Health Sciences Bldg. University of Saskatchewan SASKATOON, Saskatchewan S7N 0W0	a) Oral Biopsy b) Exfoliative Cytology	a) Oral Biopsy b) Exfoliative Cytology
Microbiology Diagnostic Service Department of Oral Biology College of Dentistry Room B613-Health Sciences Bldg. University of Saskatchewan SASKATOON, Saskatchewan S7N 0W0	a) Microbiologic Smears & Cultures b) Antibiotic Sensitivity	a) Containers & Sterile Medium b) Sterile Medium
ALBERTA		
Division of Oral Pathology Faculty of Dentistry University of Alberta EDMONTON, Alberta T6G 2N8	a) Oral Biopsy b) Exfoliative Cytology	a) Oral Biopsy b) Exfoliative Cytology
BRITISH COLUMBIA		
The Oral Pathology Service at the Faculty of Dentistry, University of British Columbia is presently being developed.		

INSTRUCTIONS FOR CONTRIBUTORS

Previously unpublished articles, critical reviews of material on advances in dentistry and clinical reports are welcomed by the Journal of the Canadian Dental Association for consideration for publication. Material is accepted for use in the Journal on the understanding it is submitted solely to this publication.

SCIENTIFIC ARTICLES: should not exceed 2,500 words in length with a minimum number of illustrations, diagrams, photographs, tables or graphs. An average of 20 references is acceptable.

MAJOR REPORTS: are longer contributions dealing with diagnosis and treatment of dental disease, studies in education, clinical and laboratory research and other detailed investigations pertinent to dentistry and related fields.

CLINICAL REPORTS: are brief (up to 1,500 words) reports, case histories and clinical observations. References should be limited and a minimum of illustrations used.

OPINIONS: fully documented opinions (800 words or less) are welcome for publication at the discretion of the editor.

The above word count is based on the calculation of approximately 250 words typed double-spaced on 8½ X 11 paper.

MANUSCRIPTS: submit three (3) copies (original and two copies) to the editor, Journal of the Canadian Dental Assoication, 1815 Alta Vista Drive, Ottawa, Ontario, K1G 3Y6.

A covering letter and a summary of the submission must accompany each article. The full mailing address of the corresponding author must accompany the manuscript.

The editor reserves the right to edit manuscripts for stylistic consistency, clarity and conciseness. The corresponding author will receive a copy of the edited manuscript for checking prior to publication. Authors must include professional degrees, academic/hospital affiliations and appointments and are requested to submit a photograph of themselves for publication with the article.

Manuscripts must be typed, double-spaced on 8½ X 11 paper on one side of the page only. An abstract must accompany each manuscript.

ARTICLE TITLES: must be descriptive but concise and suitable for indexing.

REFERENCES: must be keyed to the text and numbered consecutively. Journal references must give the author's name, article title, abbreviated journal name, volume number, first page number and last page number of article, year of publication:

1. Hechter, F.J. Symmetry and dental arch form of orthodontically treated patients. JCDA 44:173-184, 1978.

For books, give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H.C. Work simplification in dentistry, ed. 2. Philadelphia, Saunders, 1964.

ILLUSTRATIONS: must be high quality and only professional quality drawings, charts and graphs should accompany manuscripts.

Color slides or negatives will not be accepted for publication.

Submit three (3) sets of photographs (black and white, glossy, 3" X 5"), drawings, radiographs, charts and graphs. Using a grease pencil ONLY, lightly write the name of the corresponding author and figure number on the back of each illustration and photograph. Indicate 'Top' of each illustration.

X-rays must be in the form of black and white glossy prints for successful reproduction.

Charts and graphs are an addition to the text and should be numbered in order of appearance in the manuscript. Each table should be typed on a separate page with title and footnotes.

LEGENDS: must be typed as a group on a separate page for all illustrations. Photomicrograph legends must specify magnification and stain.

PERMISSIONS AND WAIVERS: must accompany the manuscript. Waivers are mandatory for the publication of photographs of patients unless faces are masked to prevent identification. Waiver forms are available from the Journal of the Canadian Dental Association office in Ottawa.

Permission of the author and publisher must be obtained for use of previously published material quoted in the text and for use of previously published illustrations.

COSTS: will be levied if four-color illustrations are requested but most articles are published at no cost to the author.

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Elizabeth McKee, editor
Journal of the Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario, K1G 3Y6

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La rédactrice en chef du Journal de l'Association Dentaire Canadienne accueillerait avec plaisir des articles inédits, des analyses critiques des documents relatifs à des progrès en dentisterie et des rapports cliniques. Il est entendu que les articles ou autres écrits présentés pour fins de publication n'auront pas été soumis à d'autres publications.

ARTICLES SCIENTIFIQUES: longueur maximale de 2,500 mots, avec illustrations, diagrammes, photographies, tableaux ou graphiques. Une vingtaine de références constituent une moyenne acceptable.

RAPPORTS MAJEURS: il s'agit d'écrits plus considérables, portant sur le diagnostic ou le traitement de maladies dentaires, sur des études en éducation, des recherches cliniques ou des travaux de laboratoire, ou encore sur d'autres études poussées relatives à la dentisterie ou à des domaines connexes.

RAPPORTS CLINIQUES: brefs comptes rendus (jusqu'à 1,500 mots), études de cas et observations cliniques. Nombre limité de références et d'illustrations.

OPINIONS: des opinions bien appuyées (800 mots ou moins) seront publiées à la discrétion de la rédactrice en chef.

Le calcul des mots se fait en se basant sur environ 250 mots par page de 8½ sur 11, double interligne.

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Une lettre d'envoi et un résumé de l'écrit doivent accompagner chaque document soumis. L'auteur doit également indiquer son adresse postale complète.

La rédactrice en chef se réserve le droit de corriger tout manuscrit pour en assurer la qualité du style, la clarté et la concision. L'auteur aura l'occasion de vérifier la version corrigée avant publication. Tout auteur doit mentionner ses grades universitaires, ses affiliations et nominations dans des universités ou des hôpitaux, et fournir une photo de lui-même.

Les textes doivent être dactylographiés à double interligne sur du papier de 8½ sur 11, d'un seul côté de la feuille. Un résumé doit accompagner chaque manuscrit.

Les **TITRES DES ARTICLES** doivent être descriptifs, mais brefs et faciles à cataloguer.

Les **RÉFÉRENCES** doivent être inscrites par des numéros consécutifs dans les passages appropriés. Les références de revues doivent mentionner le nom de l'auteur, le titre de l'article, le nom abrégé de la revue, le numéro de volume, le numéro de la première et de la dernière page de l'article, et l'année de publication:

1. Hechter, F.J. Symmetry and dental arch form of orthodontically treated patients, JCDA 44: 173-184, 1978.

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2. Kilpatrick, H.C. Work Simplication in dentistry, ed. 2. Philadelphia, Saunders, 1964.

ILLUSTRATIONS: elles doivent être de haute qualité. Seuls des dessins, des diagrammes et des graphiques de qualité professionnelle doivent accompagner les manuscrits. Les diapositives ou négatifs de couleur ne peuvent être acceptés. Prière d'envoyer trois (3) exemplaires des photos (noir et blanc, épreuves glacées de 3" sur 5"), des dessins, des radiogrammes, des diagrammes et des graphiques. Au moyen d'un crayon à mine grasse SEULEMENT, inscrire délicatement au verso le nom de l'auteur et le numéro de l'illustration. Indiquer également le "haut" de chaque illustration.

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Les diagrammes et les graphiques sont des annexes au texte et doivent être numérotés par ordre d'apparition dans le texte. Chaque tableau doit être dactylographié sur une page séparée, et être muni d'un titre et des notes explicatives nécessaires.

Les légendes des illustrations doivent être dactylographiées en groupe sur une page séparée. Les légendes de microphotographies doivent mentionner le grossissement et le colorant.

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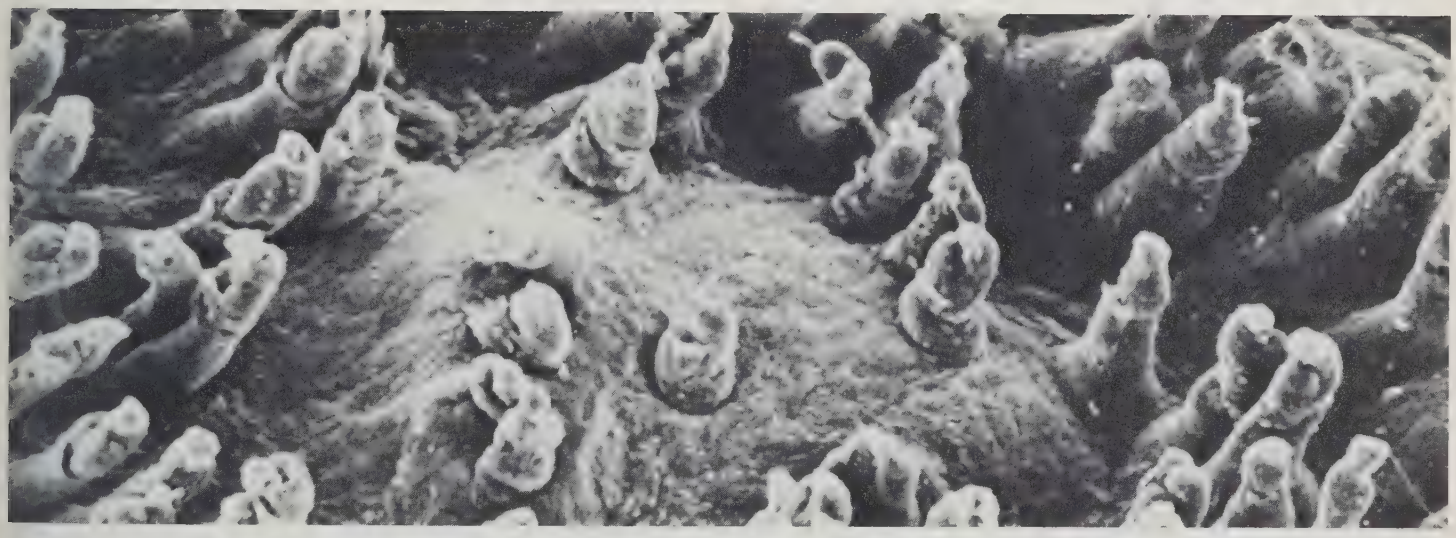
Elizabeth McKee, rédacteur en chef
Journal de l'Association Dentaire Canadienne
1815 promenade Alta Vista
Ottawa, Ontario
K1G 3Y6

In a recent series of experiments, the basal surfaces of the epidermal cells have been studied by light, transmission and scanning electron microscopy in order to visualize the nature and extent of the morphologic alterations occurring at the dermal-epidermal interface in chemical carcinogenesis. The results of this study have been reported in detail . . . This paper will describe the morphologic alterations of the basal surface of carcinogen treated epidermis as revealed by scanning electron microscopy.

Scanning Electron Microscopy of the Dermal-Epidermal Interface in Chemical Carcinogenesis

John Hardie, BDS, MSc
Edmonton, Alberta



The etiology of cancer in man has been credited to witchcraft, folklore, local customs and environment, thunder and lightning, human emotions and heritage.[1] This melange of reasons cited as causative factors in this, the most universal of diseases is indicative of the complex nature of the disorder, and of man's continuous quest to unravel the intricacies of the neoplastic process.

The word cancer is a popular term for all malignant tumors[2]. A cancer is often termed a "new growth" or

Transmission electron microscopy has revealed that chemical carcinogens do alter the normal morphology of the dermal-epidermal interface.

"neoplasm".[3] Willis[4] has defined a neoplasm as an abnormal mass of tissue, the growth of which exceeds and is uncordinated with that of normal tissues, and persists in the same excessive manner after cessation of the stimuli which evoked the change. Foulds[3] contends that there is no satisfactory definition of neoplasia, and that none will be presented until much more is understood about the nature and properties of the neoplastic process.

Since the now classical light microscopic studies by Yamagiwa and Ichikawa[5] in 1918, chemical carcinogenesis has been a valuable laboratory technique for the study of tumor development. Such investigations have demonstrated that dermal-epidermal relationships play an essential but as yet ill-defined role in the production of cutaneous neoplasms.[6-7-8-9] Tarin[10] is of the opinion that morphologic alterations in the epidermis and dermis play crucial roles in the neoplastic transformation of skin. Transmission electron microscopy has revealed that chemical carcinogens do alter the normal morphology of the dermal-epidermal interface.[11] These morphologic disturbances are subject to misrepresentation as they are interpretations of three dimensional structures from two dimensional images. An alternative method of examining morphology is required.

Scanning electron microscopy has proven to be most useful in the study of the surface morphology of tissues and cells.[12-13-14-15] Separation of the epidermis from the dermis allows the surfaces forming the dermal-epidermal interface to be studied by scanning electron microscopy.[16-17-18]

In a recent series of experiments, the basal surfaces of the epidermal cells have been studied by light, transmission and scanning electron microscopy in order to visualize the nature and extent of the morphologic alterations occurring at the dermal-epidermal interface in chemical carcinogenesis. The results of this study have been reported in detail.[19] This paper will describe the morphologic alterations of the basal surface of carcinogen treated epidermis as revealed by scanning electron microscopy.

MATERIALS AND METHODS

A. Experimental Animals

The CFW (Carworth Farms White) mice used in this series of experiments were obtained through brother-sister mating, and represent the continuation of a long established inbred strain of mice used by Dr. J.A. McCarter and his associates at the Cancer Research Laboratory of the University of Western Ontario.

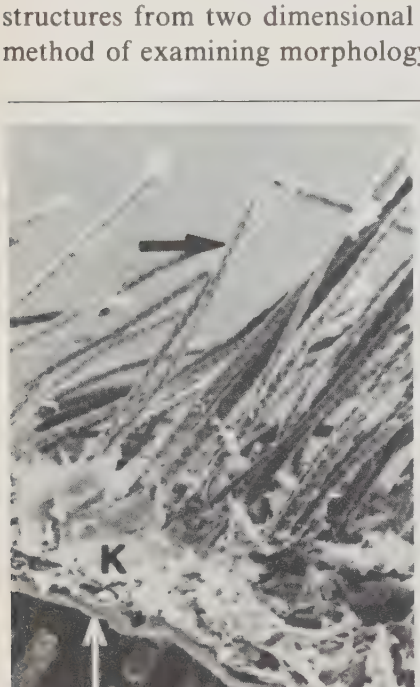


Fig. 1. The spatial relationships of hair follicles (inverted V), epidermis (white arrow), keratin (K) and hair fibers (black arrow) are illustrated. (approximate magnification X85)

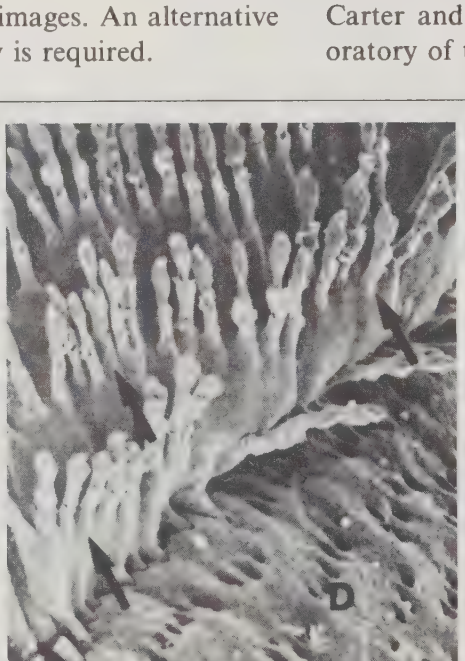


Fig. 2. The epidermal interface consists of a series of parallel rows of grouped hair follicles, with each group having 5 to 7 follicles (arrows). The dermal interface (D) has a corresponding surface morphology. (approximate magnification X50)

Fig. 3 Prominent external morphologic features of the hair follicles are hair bulbs (thick arrows), sebaceous glands (arrow head), and occasionally hair shafts (thin arrows) are visible. The hair follicles are distinctly separate from each other, and are individually joined to the flat interfollicular epidermis (E). (approximate magnification X200)

Adult six to 12 week old mice were placed randomly into one of the following two groups:

GROUP I — Controls, — 5 animals

GROUP II — Carcinogen — 50 animals

GROUP I — The mice were lightly anaesthetized by a subcutaneous injection of pentobarbital sodium. An identity mark was made in the ear of each animal, and the lower backs of all animals were shaved with an electric razor. No more than five similarly treated mice of the same sex and age, were then placed in lettered cages, in which Purina Laboratory Lamb Chow and water were freely available.

GROUP II — The animals were prepared in an identical manner to those in Group I, except that the shaved area was painted with a single application of 0.1 per cent 9:10 dimethyl 1:2 benzanthracene in redistilled acetone, using a new No. 4 squirrel hair brush.

One week after the above procedures were carried out, the skin of the mice in Group II was painted twice weekly with applications of five per cent croton oil in mineral oil using a No. 4 squirrel hair brush. This treatment was continued for a maximum of 10 weeks.

The mice were sacrificed in a saturated ether environment. The Group I mice were sacrificed at two weekly intervals. One week after the initial application of dimethyl benzanthracene five of the Group II animals were sacrificed at weekly intervals.

B. Scanning Electron Microscopy

The specimens were immersed in a 0.5 per cent acetic acid solution for 24 to 72 hours at 4°C. A dissecting microscope and small blunt forceps facilitated the separation of the epidermis from the dermis. The separated tissues were gently washed in running distilled water to remove acetic acid and debris. The epidermis and dermis were pinned to cork bases with the separated surfaces uppermost, and fixed in 3 per cent buffered glutaraldehyde for 24 hours at 4°C. The specimens were dehydrated by the camphene method of Watters and Buck.[20] The specimens were then mounted on metal stubs, placed in a Hummer coater and covered with a thin layer of gold. The specimens were examined in a Hitachi HHS-2R scanning electron microscope.

RESULTS

(i) GROUP I (control animals)

Technically the epidermis separated from the dermis with relative ease. A cut edge of a specimen illustrated the spatial relationships existing between the superficial hair fibers, the epidermis and the under-lying hair follicles **(Fig. 1).** The basal surface of the epithelium consisted of parallel rows of hair follicles. Each row contained a series of hair follicles arranged in groups of five to seven follicles. The exposed dermal surface exhibited a corresponding morphology **(Fig. 2).** The hair follicles passed into the dermis creating an intimate interlocking pattern

The external morphology of the hair follicles exhibited prominent hair bulbs and sebaceous glands. Hair shafts were visible where the external root sheath was lost. Each follicle had a separate and angled union with the interfollicular epithelium **(Fig. 3).** The interfollicular epidermis was relatively flat as were the surfaces of the individual interfollicular epidermal cells. The cells varied in size, and had a pebbled, pavemented surface **(Fig. 4).** Intercellular connections were evident between cells, which were separated by shallow intercellular spaces **(Fig. 5).**

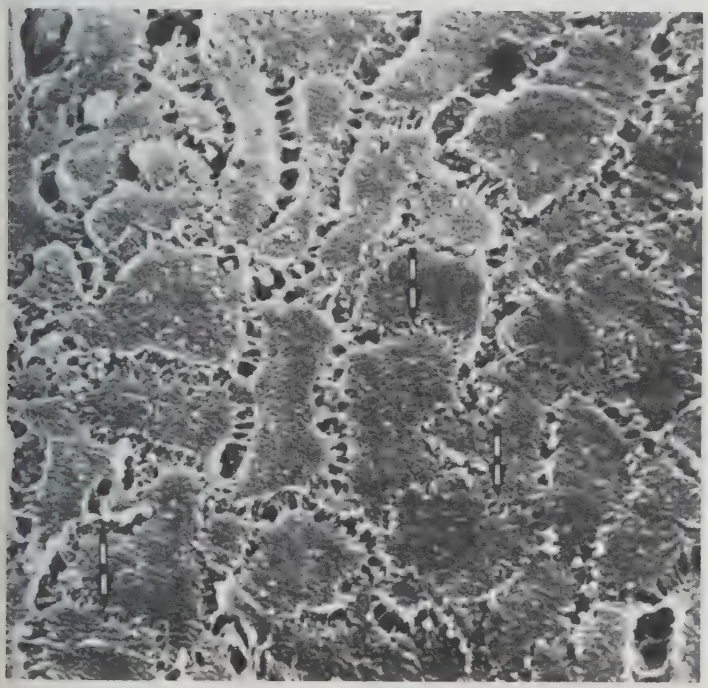


Fig. 4. The epidermal cells are variable in size and exhibit a flat basal surface. Tight intercellular boundaries are present between some cells (arrows). (approximate magnification X1,800)

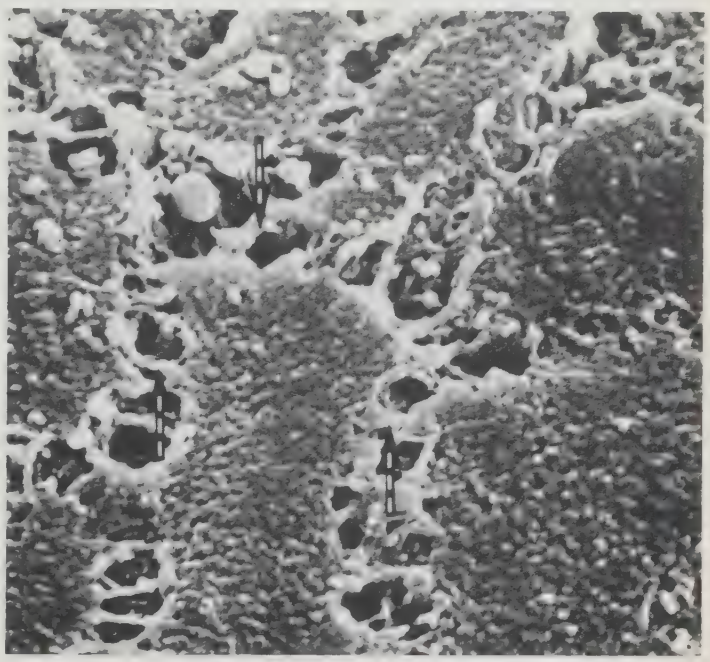


Fig. 5. A higher magnification of part of Fig. 4. The intercellular spaces are shallow and traversed by intercellular connections (arrows). The pebbled nature of the interface surface is evident. (Approximate magnification X7,000)

The basal cells of the interfollicular epidermis had curved, pebbled basal surfaces which exhibited occasional short projections.

(ii) GROUP II (carcinogen treated animals)

One week after a single application of dimethyl benzanthracene the topography of the basal surface of the epidermis had altered. This surface was dotted with discrete elevations in the interfollicular epidermis. The elevations had a varied topography and disrupted the regular parallel rows of hair follicles **(Fig. 6).** The junction of the hair follicles with the interfollicular epidermis was distorted, adjacent hair follicles were in close apposition and some follicles were almost completely covered by elevated epidermis[21] **(Fig. 7).** The basal cells of the interfollicular epidermis had curved, pebbled basal surfaces which exhibited occasional short projections. The epithelial cells were joined by intercellular connections and separated by intercellular spaces, which were wider and deeper than those in the Group I controls **(Fig. 8).**

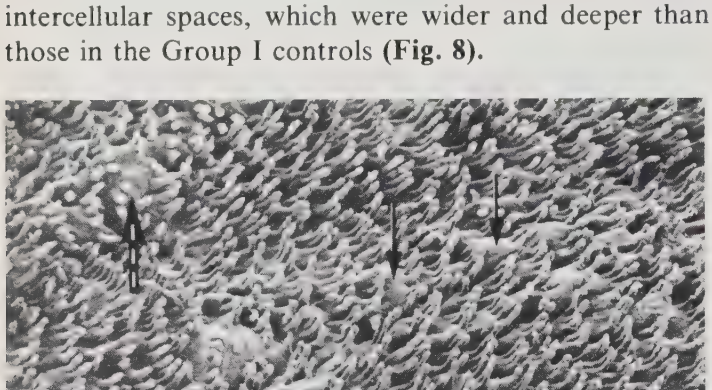


Fig. 6. One week after a single application of D.M.B.A. There are discrete elevations (thin arrows) on the basal surface of the epidermis. Diffuse elevations (thick arrow) are also present. The follicles form an acute angle with the epidermis. (approximate magnification X25)

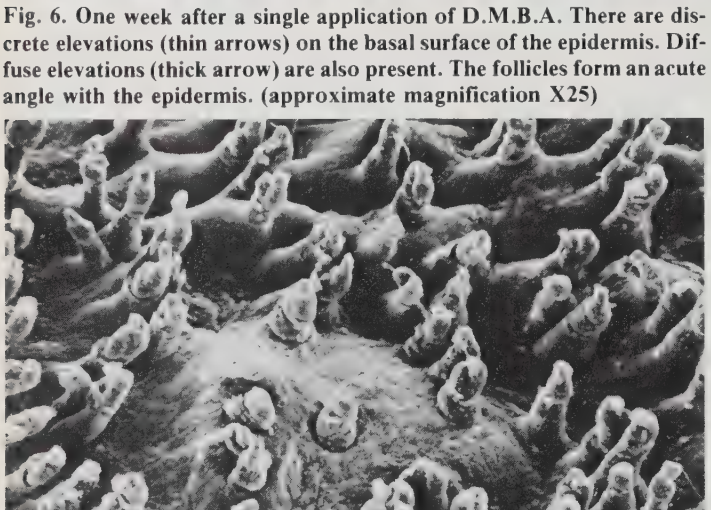


Fig. 7. A higher magnification of part of Fig. 6. The elevations extend to the level of the sebaceous glands, and almost engulf the hair bulbs. The hair follicles have a distorted morphology. (approximate magnification X350)

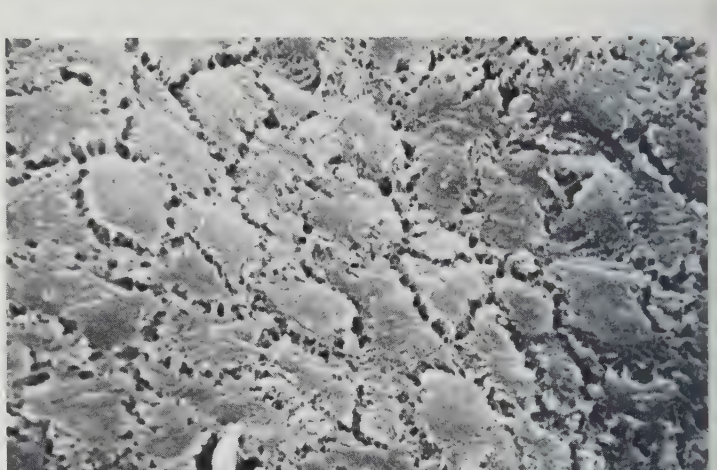


Fig. 8. One week after a single application of D.M.B.A. The basal surface of the interfollicular epidermal interface is uneven. The cells vary in size and appear smaller than those of the normal controls in Fig. 4 (approximate magnification X1,800)

Repeated applications of croton oil produced additional alterations to the topography of the basal surface of the epidermis. The most distinctive changes were rounded elevations which were surrounded by concentric rings of distorted hair follicles. The upright hair follicles were enlarged in diameter, conical in shape and in close apposition. The follicles near the central elevation exhibited a more oval shape **(Fig. 9).**

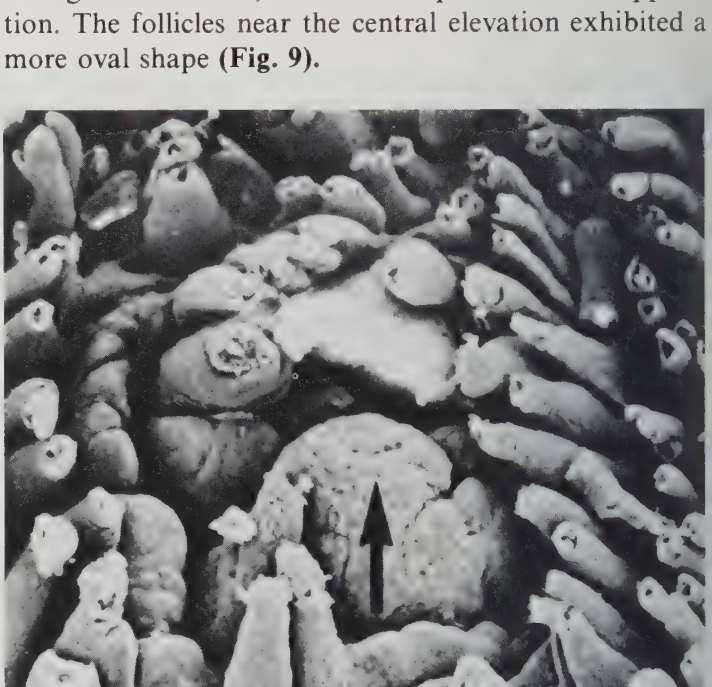


Fig. 9. Five weeks of exposure to chemical carcinogens. Discrete elevations (large arrow) are surrounded by concentric arrangements of distorted hair follicles. (approximate magnification X85)

Additional applications of croton oil severely distorted the morphology of the basal surface of the epithelium. The varied horizontal and vertical relationships of the basal interfollicular cells with one another, resulted in an uneven surface. The cells varied in size and the cells exhibited irregularly, curved basal surfaces **(Fig. 10).** These surfaces were dotted with numerous short, projections of varying shape, size and direction of inclination. The intercellular connections were fewer in number, and the intercellular spaces were wider and deeper than those in the normal epithelial cells of Group I **(Fig. 11).**

Fig. 10. Ten weeks of exposure to chemical carcinogens. The basal surface of the interfollicular epidermis is uneven. The cells are of variable size,and appear smaller than the normal controls in Fig. 4. (approximate magnification X1,800)

Fig. 11. A higher magnification of part of Fig. 10. The cells are separated by wider and deeper spaces and appear to have fewer intercellular connections, than those of the normal controls in Fig. 5. The basal surfaces of the cells are rounded and exhibit numerous projections (arrows) which are variable in size and angle of inclination. (approximate magnification X7,000)

DISCUSSION

The investigation of the dermal-epidermal interface by scanning electron microscopy is a relatively new technique. The nature and magnitude of artefacts associated with the physical separation remain unknown. Recently Komitowski et al[16] and Hardie,[19] have independently demonstrated a definite correlation between the light, transmission and scanning electron microscopic findings of epidermis separated after exposure to chemical stimulation. It is therefore suggested that the morphologic alterations occurring at the basal epidermis in this series of experiments are real, and provide pertinent comparisons between normal and carcinogen stimulated epidermis.

Scanning electron microscopy displayed the topographical features of the normal dermal-epidermal interface. The findings were in agreement with those of Komitowski et al.[16] The regular arrangement and external morphology of the hair follicles were readily visualized. The simplicity of this method of studying morphology compares favourably with the precise but time consuming serial section techniques employed by Montagna in 1958.[22] The interfollicular epidermis consisted of cells having a flat basal surface and intercellular shallow spaces, although a few cells exhibited an intimate contact. A comparison of these findings to results obtained by other separating techniques might provide valuable information on the precise nature of the basal epidermal surface and of the mechanisms of separation.

A single application of the D.M.B.A. produced distinct architectural disturbances of the dermal epidermal interface. These alterations were similar to changes obtained by the repeated applications of the hyperplastic agent, croton oil.[19] D.M.B.A. would appear to be a more effective inducer of interface changes. In this study D.M.B.A. was employed as the initiating agent and croton oil as the promoting agent during the two-stage process of chemical carcinogenesis. The precise mechanisms by which initiators and promotors operate, are not known.[23] Useful information pertinent to this problem might be obtained by conducting a detailed comparative scanning electron microscopic study of the effect of initiators and promotors upon the dermal-epidermal interface.

Komitowski et al[16] considered that the hair follicles underwent insignificant changes as a result of D.M.B.A. stimulation. The present investigation demonstrated a marked alteration in the topographical features of the hair follicles one week after a single application of D.M.B.A. The hair follicles were distorted and thickened. The basal surface of the interfollicular epidermis adjacent to the hair follicles exhibited rounded elevations. The elevations might represent hyperplasia of the infundibular region, or focal hyperplasia of the interfollicular epidermis. Indeed the elevations might indicate infundibular epidermis which has undermined and displaced the interfollicular epidermis, thus illustrating the postulates of Pinkus[24]

regarding the symbiotic relationship between infundibular and interfollicular epidermis.

Suntzeff et al[25-26] were of the opinion that a single application of a carcinogen would destroy many sebaceous glands. Their findings were not confirmed by the present study. Although the functional capac ity of the glands was not evaluated their morphology was similar to that seen in normal tissue.

Ghadially,[27-28] Prutkin,[29] and Harms et al,[30] demonstrated that the papillomatous lesions which developed during chemical carcinogenesis had histomorphologic features which were similar to human keratoacanthomas. The lesions were considered by these authors to be tumors of hair follicles. The sequential development of the lesions as seen by light and transmission electron microscopy was described by Ghadially,[27] Prutkin,[29] Siegler and Duran-Reynals.[31] Scanning electron microscopy of developing lesions dramatically illustrated the spatial re-arrangements and altered morphology of the involved follicles. A focal area of follicular thickening spread in increasing concentric circles to involve additional follicles in a process of enlargement and fusion of adjacent follicles. The eventual outcome was a central elevated mass of epidermal tissue, which was clearly delineated but completely devoid of adnexal structures. It is of historical interest to appreciate that Liang in 1949,[32] using a light dissecting microscope described similar alterations to hair follicles after exposure to chemical carcinogens.

Scanning electron microscopy of the carcinogen treated epidermis revealed an apparent increase in the number of hair follicles within a given area of the interface. It was suspected that this was an optical illusion related to the development of folds at the interface. Light microscopic studies have shown that on exposure of skin to chemical carcinogens epidermal hyperplasia is induced.[33-34-35] It is therefore postulated that the folds would accommodate the increased surface area of the hyperplastic epidermis, and by bringing adjacent rows of hair follicles closer together increase their density per unit area. During carcinogenesis the hair follicles had a more upright insertion into the epidermis which might also be explained by the presence of folds. The precise surface dimensions and number of hair follicles in a unit area of normal basal epidermis might be obtained by morphometric studies employing scanning electron microscopy. Similar investigations could be performed on carcinogen treated epidermis. A comparison of the results would indicate if there is a real or only apparent increase in the number of hair follicles.

Examination of the basal surfaces of the epidermal cells at the periphery of developing lesions revealed definite alterations in cellular morphology. The cells were smaller and separated by wider and deeper spaces compared to the normal basal epidermal cells. The basal surfaces of the cells were rounded and exhibited numerous irregularities and projections having a variety of sizes and shapes. Transmission electron microscopy of the dermal-epidermal interface on skin undergoing neoplastic transformation has revealed the existence of cytoplasmic extensions from the basal epidermal cells into the adjacent dermis, in addition the extensions are surrounded by duplication of the basement membrane.[21-34-35-36-37]

A satisfactory explanation has not been tendered for the existence of a duplicated basement membrane. The extreme thinness of transmission electron microscopy specimens allows them to be considered as two dimensional objects. The complex nature of the surface morphology of basal epidermal cells exposed to chemical stimulation has been revealed by scanning electron microscopy. It is therefore postulated that the so called duplicated membrane might represent the membrane covering an adjacent cytoplasmic irregularity or projection which happens to be in the same plane of section as the transmission electron microscopic specimen. Thus the duplicated membrane might simply be a product of the cell's altered morphology. Proof for this assumption is that the projections on the basal epidermal cells when examined by scanning electron microscopy correspond to the cytoplasmic projections of such cells as illustrated by transmission electron microscopy.[19] The post-scanning electron microscopy examinations advocated by Williams et al[38] might confirm this correlation.

Light and transmission electron microscopic findings have demonstrated alterations in the dermal-epidermal interface during neoplastic transformation,[39] inflammation,[36] wound healing[40] and in the implantation of the trophoblast.[36] The interface changes observed in this study must be considered not as being specific but rather as important and perhaps essential features of the process of chemical carcinogenesis. Scanning electron microscopy has assisted in visualizing the nature of the alterations but has not indicated how or why the changes occur. Nicolson has expressed the view that topographic "patterns" of cell surface molecules found on different cells could act as a "code" by which normal cells recognize each other and regulate their growth and social behavior and that alterations in such topographic patterns, if sustained, could result in the spectrum of abherrent behavioral characteristics displayed by cancer cells. He is also of the opinion that sufficient experimental proof exists to equate a functional relationship between the dynamics and topography of cell surface macromolecules and the control of cell surface properties.[41] Nicholson's statements add support to the necessity of performing a detailed comparative study by scanning electron microscopy of the basal surface of the epidermal cells during wound-healing, inflammation and chemical carcinogenesis. The results might reveal subtle differences in topographical features which could be related to the definite differences in the behavior of the cells.

An essential feature of the studies by Papa and Farber,[17] Wysocki et al,[18] Komitowski et al[16] and of the current series of experiments, has been the relative ease with which it is possible to examine the morphology and spatial rela-

This series of experiments has demonstrated that in experiment carcinogenesis the basal surfaces of the epidermal cells undergo distinct morphologic alterations.

tionships of the structures comprising large areas of the dermal-epidermal interface. Wysocki et al[18] were impressed by the relationships existing between the interface architecture and the physiologic function of the tissues, whereas Komitowski et al[16] emphasized that certain pathological states were accompanied by alterations in the intercellular relationships. This information combined with the results of the present study indicates that scanning electron microscopy of the dermal-epidermal interface is a useful investigative tool which can be applied to normal and abnormal tissues. In 1962 after performing light dissecting microscopic observations Oberste-Lehn[42] was convinced that dermal-epidermal interface studies can be of diagnostic value in dermatologic pathology. Scanning electron microscopy of the dermal-epidermal interface might be developed as a clinical diagnostic and prognostic aid in non-neoplastic, pre-neoplastic and neoplastic disorders of the skin.

This series of experiments has demonstrated that in experimental carcinogenesis the basal surfaces of the epidermal cells undergo distinct morphologic alterations. Nicolson, Foulds, Tarin, and Poel,[43] are of the opinion that tumor development is closely related to alterations in the morphology of the cells and tissues which comprise the tumor. The present study has not resolved the dilemma of whether the morphologic alterations are the cause or the effect of neoplastic transformation. However, the results do indicate that scanning electron microscopy of the interface surfaces of tissues forming tumors is both a feasible and practical exercise, which justifies additional investigation.

SUMMARY

Normal mouse epidermis and mouse epidermis exposed to chemical carcinogens were separated from the underlying dermis. The basal surfaces of the epidermal cells were studied by scanning electron microscopy.

The results demonstrated that there are definite morphologic alterations to the basal surfaces of the epidermal cells during neoplastic transformation. Further studies with different physical and chemical agents are warranted to evaluate the specificity of these changes.

The epidermal lesions which developed had the morphologic features of keratoacanthomas. Scanning electron microscopy of the dermal-epidermal interface revealed the role played by the hair follicles in the development of such lesions.

Scanning electron microscopy was found to be a useful research tool for the investigation of the dermal-epidermal interface. The technique should prove helpful in the study of this interface in dermato-pathology and may have diagnostic implications.

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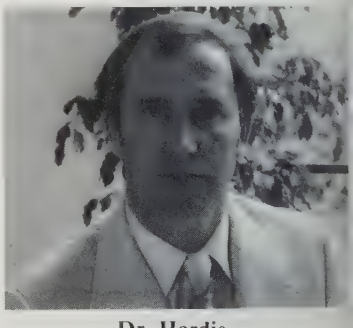
Editor's Note: Dr. Hardie received the 1979 Canadian Dental Research Foundation Award with this paper.



Dr. Hardie

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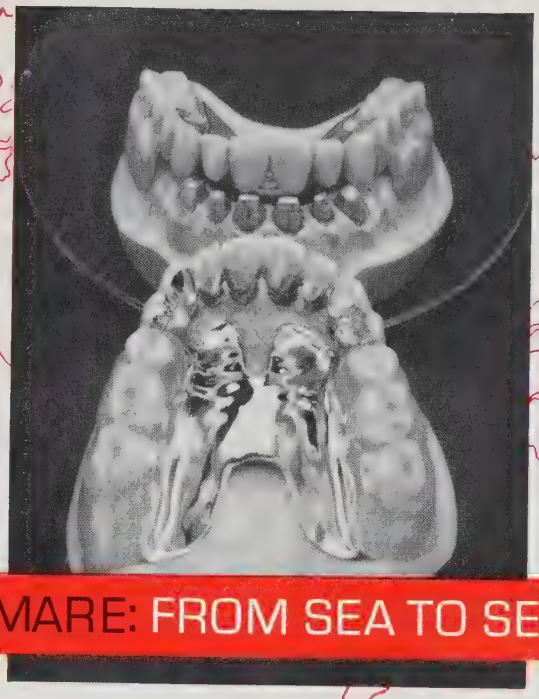

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Canada

Canadian Dental Association, 1980 National Convention, Halifax, Nova Scotia, July 13-16, 1980. Contact: Dr. T.D. Ingham, Nova Scotia Dental Association, P.O. Box 604, Halifax, N.S. B3J 2R7.

L'Association Dentaire Canadienne, Congrès national 1980, Halifax, Nouvelle-Écosse, 13-16 juillet 1980. Pour renseignements: Dr T.D. Ingham, Association Dentaire de la Nouvelle-Écosse, B.P. 604, Halifax, N.-É. B3J 2R7.

November/Novembre

Toronto Academy of Dentistry Annual Winter Clinic, Royal York Hotel, Toronto, November 22, 1979. Contact: Academy of Dentistry, 234 St. George Street, Toronto, Ontario, M5R 2P2.

December/Décembre

The Royal Dental College, Copenhagen, two-day seminar, oral cancer, J.J. Pindborg. Faculty of Dentistry, University of Toronto, December 7-8, 1979. Contact: Mrs. E. Ryley, Department of Oral Surgery, Faculty of Dentistry, 124 Edward St., Toronto, Ont. M5G 1G6. Phone: (416) 978-2842.

International

November/Novembre

Postgraduate Course In Head and Neck Radiologic Diagnosis: Computerized Tomography, Tomographu, Angiography, Nuclear Medicine and Ultrasound, New York City, November 2-4, 1979. Fee $150. Category 1 Approved 17 hours. Contact: Guy D. Potter, M.D., director, Dept. of Radiology, Lenox Hill Hospital, 100 East 77th Street, New York, N.Y. 11021, U.S.A. Telephone: (212) 794-4305.

36th Annual Meeting of the American Institute of Oral Biology, Spa Hotel, Palm Springs, California. November 2-6, 1979. Contact: Executive Secretary, P.O. Box 481, South Laguna, CA. 92677, U.S.A

IV International Congress-Golden Jubilee of the Academia de Estomatologia del Peru. Third Spanish-Latin American Dental Congress, Lima, Peru. November 14-17, 1979. Contact: Dr. Antonio Pinillo Soteros. Chota 760-Lima, Peru.

30th Annual Scientific Congress of the Korean Dental Association. Guaruja. Brazil, November 25-December 2, 1979. Contact: Rua Humaita 389, Cx. Postal 2523, C.E.P., 01321 — Sao Paulo, Brazil.

Society of Oral Physiology and Occlusion, New York, N.Y., U.S.A., November 26, 1979. Contact: Mr. Irving Anderman, 3 Linden Pl., Middletown NY 10020, U.S.A.

National Institute of Dental Research and the National Institutes of Health, Bethesda, Maryland, U.S.A. November 28-30, 1979. Pre-registration is a requirement. Contact: Ms. Janis E. Baker, CDP Associates Inc., 6000 Executive Boulevard, Suite 510, Rockville, MD 20852, U.S.A. Phone: (301) 468-0696.

2nd World Congress on Pain and Anxiety Control in Dentistry, New Delhi. India. November 27-29. 1979. Contact: Dr. P. Virapin, 15 avenue de Maurin, 3400 Montpellier, France.

December/Décembre

Implant Seminar VI Ramus Frame Implant, Birminham, AL U.S.A., December 8-9, 1979. Contact: Alabama Implant Study Group, P.O. Box 4682, Birmingham, AL 35206, U.S.A.

1980

Ninth Sao Paulo Odontology Congress, 15th Brazilian Odontology Congress, 12th Latin American Seminar of Odontology, São Paulo, Brazil, January 19-26, 1980. Contact: Secretary, São Paulo Dental Association, Rua Humaita, 389, P.O. Box 2523, São Paulo, Brazil.

First International Dental Conference,

The 1980 meeting of the Fédération Dentaire Internationale will take place in Hamburg, Germany, September 2 to 7. During the 68th Annual World Congress of the FDI, time will be made available to get to know Hamburg, its surroundings as well as Berlin. The photograph above is an aerial view of the Hamburg Congress Centre and the Hamburg Fairs Centre.

Bombay, India, January 20-24, 1980. Contact: G.B. Shankwalker, Government Dental College and Hospital, Bombay 400001. India or Jangoo D. Kapadia, Sunkersett Mansion, Nan's Chowk, Bombay 400 007, India.

XVII Congress of the Federación Odontológica de Centro América y Panama (FOCAP), City of Panama, Republic of Panama. January 21-25, 1980. Contact: Dr. Hernàn de J. Ramos M., Apartado Postal 6677, Panamà 5, Republica de Panamá.

16th Annual Dental Convention of the Jamaica Dental Association, Montego Bay, Jamaica, January 27-31, 1980. Contact: Basil Keane, 40 Union Square, Kingston, Jamaica, W.1.

East Coast District Dental Society, Miami Winter Meeting, Fontainebleau Hilton, Miami Beach, Florida, February 1-3, 1980. Contact: Barbara Sims, Executive Director, East Coast District Dental Society, 420 South Dixie Highway, 2-E, Coral Gables, FL 33146, U.S.A.

Australian Dental Association Convention, Hobart, Australia, February 16-21, 1980. Contact: H. Hammer, 130 New Town Rd., New Town, Tas 7008, Australia.

First Ever Yukon Dental Convention, Whitehorse, Yukon Territory, to be held in conjunction with Rendezvous, February 22-23, 1980. Contact: Dr. R. Pearson, 309 Wood St., Whitehorse, Yukon Territory.

Virgin Islands Dental Association Winter Meeting, St. Thomas, U.S. Virgin Islands. February 25-March 2, 1980. Contact: Virgin Islands Dental Association, c/o Travel Services, P.O. Box 1691, St. Thomas, U.S. Virgin Islands 00801.

Eighth Australian Orthodontic Congress, Perth, Australia. March 23-29, 1980. Contact: Hon. Secretary, Australian Society of Orthodontists, 179 St. George's Tce. Perth, W.A. 6000, Australia.

Ontario Dental Association 113th Annual Spring Meeting. The Sheraton Centre, Toronto, Ontario, April 27-30, 1980. Contact: Mrs. W.C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P1.

Alabama Implant Congress VI, Birmingham, AL U.S.A., May 1-4, 1980. Contact: Alabama Implant Study Group, P.O. Box 4682, Birmingham, AL 35206, U.S.A.

British Columbia College of Dental Surgeons 1980 Convention, Hyatt Regency Hotel, Vancouver, May 27-31, 1980. For further information, please contact: Venue West Ltd., 1704 — 1200 Alberni Street, Vancouver, B.C. V6E 1A6, phone: (604) 681-5226.

Schweizerische Zahnarzte-Gesellschaft (SSO), Interlaken, Switzerland, May, 1980. Contact: Franz Plattner, Chefredaktor des Bulletins, Ottoplatz 21, 7000 Chur, Switzerland.

Eighth International Conference on Oral Biology, Tokyo, Japan, June 1-3, 1980. Its theme will be: Oral Disease Prevention — its implications and applications. An interesting study tour program in Japan, China and Thailand is being arranged in connection with the conference. Contact: Dr. George S. Beagrie, University of British Columbia, Faculty of Dentistry, 2075 Westbrook Place, Vancouver, B.C. V6T 1W5.

86th Meeting of the American Dental Society of Europe, Stratford-upon-Avon Hilton, Stratford-upon Avon, England, June 24-28, 1980. Contact: The Secretary, Dr. Brian J. Parkins, 57 Portland Place, London W1N 3AH, England.

British Dental Association Centenary Meeting, London, England, July 10-11, 1980. Contact: R.B. Allen, secretary, British Dental Association, 64 Wimpole Street, London W1M 8A1, England.

New Zealand Dental Association Jubilee Conference 1905-1980, Dunedin, New Zealand, August 25-29, 1980. Contact: The Conference Secretary, P.O. Box 647, Dunedin, New Zealand.

Fédération Dentaire Internationale, International Dental Show. Hamburg, Germany. August 25-September 7, 1980. Contact: M. Jean-Pierre Schweizer, sales manager. Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 309, Toronto, Ont., Can., M5H 1L9.

Fédération Dentaire Internationale, 68th Annual World Dental Congress, Hamburg, Germany, September 2-7, 1980. Contact: Dr. R. Braun, Bundesverband der Deutschen Zahnärzte, Universitaisstrasse 73, 5000 Koln 41, Germany.

Third National Convention and III International Conference of Oral Health, Lima, Peru, October 1-4, 1980. Contact: Dr. Gilberto Dominguez, Av. Benavides 264-902, Lima 18, Peru, South America.

1981

Fédération Dentaire Internationale, **69th Annual World Dental Congress,** Rio de Janeiro, Brazil, September 5-9, 1981.

Fédération Dentaire Internationale. **70th Annual World Dental Congress,** Vienna, Austria, October 11-16, 1982.

Fédération Dentaire Internationale, **71st Annual World Dental Congress,** Tokyo, Japan, October 1983.

Fédération Dentaire Internationale, **72nd Annual World Dental Congress,** Helsinki, Finland, August/September, 1984.

Announcements are placed free of charge in the Journal of the Canadian Dental Association. Send Announcements to: CDA Journal, 1815 Alta Vista Drive, Ottawa, Ont., Canada K1G 3Y2. Only written notices are accepted for publication.

Obituaries

CARROLL, David Armsby, graduated University of Toronto, 1924. Practised in Grande Prairie, Alberta from 1926 until retirement in 1965. Dr. Carroll was a charter member of the Peace River Dental Society. He is survived by his wife, Gertrude, and sister, Mrs. Jacobson of Saskatoon, Saskatchewan.

WILLIAMSON, Kenneth Gillmor, August 11, 1979. Dr. Williamson is survived by his wife, four children and five grandchildren. He resided in Bonny River, Charlotte County, New Brunswick.

Marketplace

Offices and Practices

BRITISH COLUMBIA — Harrison Hot Springs. Beautiful functional office with established preventive philosophy and more than average crown and bridge performed. Opportunity to buy practice, home, land. Office is in a bungalow in this beautiful resort town with a drawing area of 3,000 — 4,000. Only dental office in town. Realistic, fair purchase price. Contact: Karjon Management, 7300 Westminster Highway, Richmond, B.C. V6X 1A1. Phone: (604) 278-5426.

BRITISH COLUMBIA — Southern Interior. Large practice for sale with two associates (one full time, one part time), hygienist, etc. Grossing in area of $450,000 per year with owner take home $170,000 on a 3½ day week, nine months a year. Only good management and financially minded dentists need apply. Present owner wishes to retire at age 40. Excellent terms to right party. Also, an excellent house to be considered. This is an opportunity of a lifetime. Are you wasting your time and energy trying to build a practice? Wasted time is costing you valuable income. Reply to CDA Box Number 1915.

BRITISH COLUMBIA — Revelstoke. Lucrative, preventive family practice for sale/lease; nestled in the scenic Columbia River Valley of eastern British Columbia. Modern, efficient Cox floor plan suitable for one or two dentists with room for expansion. Excellent financial opportunity in thriving environment with unlimited recreation. Phone collect: (604) 837-5149.

BRITISH COLUMBIA — Vancouver. Present dentist will be vacating an ideally located rental suite at 925 West Georgia Street, Vancouver, in December 1979. The office contains an attractive reception room, business office, laboratory, dark room and two operatories. It also offers an excellent harbour view. Selling price will be set on the depreciated value of capital improvements. Expensive initial costs associated with a new dental office can therefore be considerably reduced. For further information, reply to CDA Box Number 1934.

ALBERTA — High gross practice for sale; 20 minutes from Edmonton; two fully-equipped ultra-modern operatories; Pelton & Crane chairs, Adec carts, Dental-Eze truth systems; share reception area, Panelipse, lab, staff room, patient education room and hygienist with two other dentists. Phone: (403) 481-0503 after 7:00 p.m. week-days.

SASKATCHEWAN — Assume Medident lease for complete dental office (includes furniture, filing system, two operatories with Chairman chairs, GE 1000 X-ray units, P&C Executive units with all the options, and Ritter handpieces). Lease expires September 1981; dentist leaving area. Earliest and best offer accepted. Phone: (306) 752-5819 after 7 o'clock evenings.

SASKATCHEWAN — Prince Albert. High quality general practice, gross $147,000 on 4 day week. No accounts receivable. Great staff. Practice in large 2-½ storey house with studio apartment (sauna, cedar, stained glass, solar-assisted heating, maple kitchen cupboards, etc.) Area is in Northern Lake District noted for excellent hunting and fishing. Owner moving. Phone: (306) 764-0562.

SASKATCHEWAN — Saskatoon. Long established practice for sale in Saskatoon's most centrally located office building. Two fully equipped operatories. Impending retirement, adjustable possession date. Price is reasonable and terms are negotiable. Contact: Dr. B.J. Wall, 510 Canada Building, Saskatoon, Sask. S7K 0B3, or phone: (306) 244-7606.

ONTARIO — Exceptional opportunity to purchase a fine preventive family practice well-established with high earnings and excellent personnel. 45 minutes north of Toronto in farming community with drawing area of 10,000. Two modern equipped operatories with third partially set up. Reply to CDA Box Number 1925.

ONTARIO — Hamilton. One half or all of a modern two-dentist five operatory preventive practice consisting of 2,000 sq. ft. In addition, a large basement for storage and ample parking outside. Cox, Pelton Crane chairs, nitrous oxide, automatic developer and many other extras. A rare opportunity to acquire a quality high gross practice. Reply to CDA Box Number 1932.

ONTARIO — Hawkesbury. Space for rent in newly constructed commercial centre on Main St. in Hawkesbury. Four stores fronting Main St. and twelve units in the rear at street level through an eight-foot arcade corridor. Available in areas of 600 sq. ft. or more. Accessible from street or entrance from parking lot for 160 cars. Dentists urgently required in this area. Apply to: Assaly Realties of Hawkesbury, 129 Main St. E., Hawkesbury, Ont. Phone: (613) 632-2719.

QUEBEC — Montreal area. Beautiful modern office, high quality practice for immediate sale. Three operatories, one fully equipped. Now working on a three-and-a-half day week. Owner leaving province. Reply to CDA Box Number 1929.

QUEBEC — Montreal area. High gross quality practice, in a group existing over twelve years. All aspects of dentistry. Large number of patients. Lease from group as you need or other arrangements. Reply to CDA Box Number 1930.

QUEBEC — Montreal, West Island. General practice, excellent growth, excellent location. Self-contained bungalow office building; two operatories. Must be seen immediately. Reply to CDA Box Number 1935.

Associateship Available

BRITISH COLUMBIA — Fort St. John. Full-time or part-time associate wanted. Part-time can be one week on (four or five days) and one week off. Convenient flights to Vancouver, Edmonton or Calgary. Ideal for someone who just set-up a new office. Phone: (604) 787-7810 (office) or 787-7693.

BRITISH COLUMBIA — Vancouver. Oral surgery associate required for long established busy specialty practice, both office and hospital oriented, in order to share an increasingly heavy patient load in West Broadway location. Applicant must be certified, or certifiable, in the specialty of oral and maxillofacial surgery in British Columbia. Reply to CDA Box Number 1928.

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Although the Canadian Dental Association believes that the classified advertisements which appear in these columns are from reputable sources, the Canadian Dental Association neither investigates the offers being made nor assumes any responsibility concerning them.

SASKATCHEWAN — Saskatoon. Associateship leading to full partnership in a well established, modern oriented practice; with one other dentist. All aspects of general dentistry with modern equipment. A large patient volume ensures excellent remuneration for any ambitious individual. Please send reply to: Dr. Keith Morton, 1121 Louise Avenue, Saskatoon, Sask. S7H 2P8. Phone: (306) 374-3266.

SASKATCHEWAN — Saskatoon. Busy downtown group dental practice requires an associate. This well established practice can assure a good income from the outset. All replies strictly confidential. For further details reply to CDA Box Number 1918.

ONTARIO — Hagersville. Full-time associate required. Town of 3,000, 20 miles south of Hamilton. Three operatory office with modern equipment. Extremely lucrative and preventive oriented. Last year's gross over $120,000. Reply to CDA Box Number 1927.

Opportunities Available

BRITISH COLUMBIA — Penticton. Dental hygienist required. Full-time position available in highly preventive and people oriented practice. Excellent remuneration; four day week, six weeks holiday with pay; opportunities for postgraduate courses. To work with young, progressive dentist, modern equipment. Position open immediately. Phone: (604) 492-0593 or 493-0540, or write: Dr. R.R. Bentham, 195 — 333 Martin Street, Penticton, B.C. V2A 5K7.

BRITISH COLUMBIA — We are offering a unique opportunity to a mature dentist to share our busy family practice situated in a picturesque alpine environment. The economic climate is excellent, supported by lumber, hydro-electric, railroad and tourist industries, (heli-skiing and alpine recreation unlimited.) Our group practice configuration allows for flexibility of work patterns, learning and consulting opportunities and reduced stress. Please call: Drs. Harold Prussin or Eric Ruby for details. (604) 837-5149.

ALBERTA — Grande Prairie. Orthodontist urgently required for a rapid growing city of 20,000 and an area of 50,000. Instant practice. Plenty of work for two orthodontists. City is basically a young population with a large number under third parties. City has all amenities such as raquetball courts, golf course, daily jet service, etc. Reply to CDA Box Number 1924.

ALBERTA — Hythe. Dentist wanted to practise in the Village of Hythe in northern Alberta. The market population of this centre is now 3,000 and expanding due to the exploration and development of gas and oil fields in the area. Hythe has a resident doctor who is a qualified anaesthesiologist so dental surgery could also be part of the practice. Other facilities include a hospital, a pharmacy, a senior citizens home (85 residents) and construction of a 25-bed nursing home is expected shortly. This is an ideal opportunity for a young dentist to establish a practice in a growing centre. Village Council will assist a prospective dentist for the community. Enquiries to: Village of Hythe Office, Box 129, Hythe, Alta. T0H 2C0.

ONTARIO — Dryden. Dental hygienist required for busy family practice. Modern fully-equipped dental office. Fishing, hunting, boating, skiing and other recreational facilities. One hour daily flight from Winnipeg and Thunder Bay. Reply in writing to: Box 419, Dryden, Ont. P8N 2Z1.

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas of Northern Ontario. An incentive grant of $18,000, payable over four years, or a guaranteed net professional income of $28,000 per annum is offered. A number of salaried positions are available on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 15 Overlea Blvd., Toronto, Ont. M4H 1A9. Telephone: (416) 965-5036.

ONTARIO — Toronto. Periodontist to join busy group practice, within 50 miles west of Toronto, full or part-time. New professional building, fully equipped, etc. Area currently underserviced by specialist. Reply in confidence to CDA Box Number 1905.

ONTARIO — Toronto. Paedodontist required for busy Paedodontic practice in north Metropolitan Toronto. Opportunities available for partnership. Position available immediately. Applicant must be certified to practise in Ontario. Reply in strict confidence to CDA Box Number 1912.

NOVA SCOTIA — Oxford. Dentist wanted for Medical Centre now under construction. Interested parties may contact: H.M. McCormack, Town Clerk, Town of Oxford, P.O. Box 338, Oxford, N.S. B0M 1P0.

NEWFOUNDLAND — St. John's. Dental hygienist wanted for busy preventive oriented practice. Hygienist's operatory complete with new equipment. Central location. Good working conditions. Apply in writing or call collect to: Dr. R.P. Quigley, 257 Le Marchant Road, St. John's, Nfld. Phone: (709) 579-2115 (office) or 226-6247 (Res.)

AUSTRALIA — Melbourne. The Royal Dental Hospital of Melbourne. Applications are invited for the full-time position of Deputy Dental Director of the Hospital. The appointee will be required to assist the dental director in all matters relating to the professional services of the hospital, and its activities associated with the University of Melbourne. The terms and conditions of the appointment shall be as prescribed in the Determination of the Hospital Dental Officers' Wages Board, and salary shall be as fixed by the Hospital Council from time to time. The present salary is approximately $33,600.00 per annum and superannuation is available. Persons interested may obtain further information from the Administrator, Mr.W.R. Phillips. Applications close on Friday 27th October, 1979. The present incumbent is due to retire on 20th August, 1980, and it is expected that the successful appointee will commence duty shortly before that date. Applications, which will be treated as confidential, together with the names and addresses of three referees and a passport photograph of the applicant,

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should be addressed as follows: Mr. R.H. Osman, President, The Royal Dental Hospital of Melbourne, 711 Elizabeth Street, Melbourne 3000 Victoria, Australia.

TAX SHELTER (MURB) — Metro Toronto. Condominium townhouses, semi, 3-5% cash, class 32 CCA 10%, rental and cash flow guarantee, soft costs available. A World Realty Corporation, 276 Jane St., Toronto, Ont. M6S 3Z3. Phone (416) 766-6700, 762-3366 or 245-5544. Pager 9999.

Opportunities Wanted

BRITISH COLUMBIA — Dentist wishes to purchase records of retiring dentist in Vancouver area. Please Reply to CDA Box Number 1916.

CANADIAN CITIZEN, National Board certified, completing Endodontic Program in June, 1980, interested in practice opportunities in Ontario and Alberta. Reply to CDA Box Number 1933.

MANITOBA — General dental practitioner, B.D.S. University London 1973. Six months internship, five years' extensive general practice experience, last two months in Canada. Manitoba Board exam 1978. Seeks associateship/partnership in busy, progressive, developing, preventive-oriented practice. Private practice preferred. Other position and any other area considered. Contact: Dr. J.R. Patton, Box 1140. Yellowknife, N.W.T.

ORAL SURGEON — Completing three-year fully-accredited oral and maxillofacial surgery residency June 1980 in U.S. major teaching centre. Extensive training in ambulatory anesthesia, orthognathic surgery and trauma. Desire association in Toronto or vicinity. Please reply: c/o Dr. Michael Watt, 125 Rusty Crestway, Willowdale, Ont. M2J 2Y5.

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Miscellaneous

PHILOSOPHY — Any dentist who is a student of Objectivism, please write or phone me: Adrian van Hoek, 2 — 372 Coronation Avenue, Duncan, B.C. V9L 2T3. Phone: Office (604) 746-6533 or (604) 748-9864 home.

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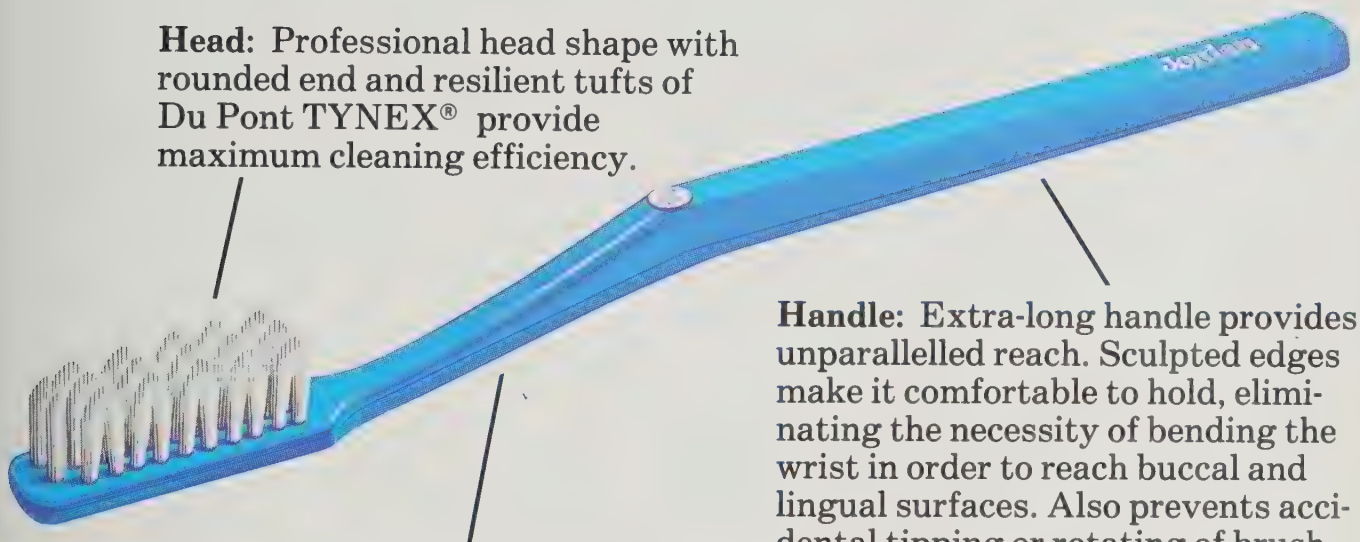

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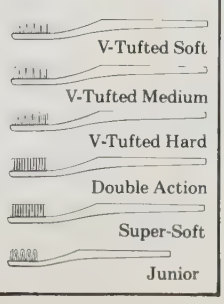

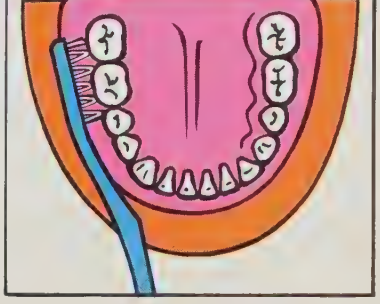

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Vol.45 No.11

Canadian Dental Association November 1979

Journal

de l'Association Dentaire Canadienne Novembre 1979

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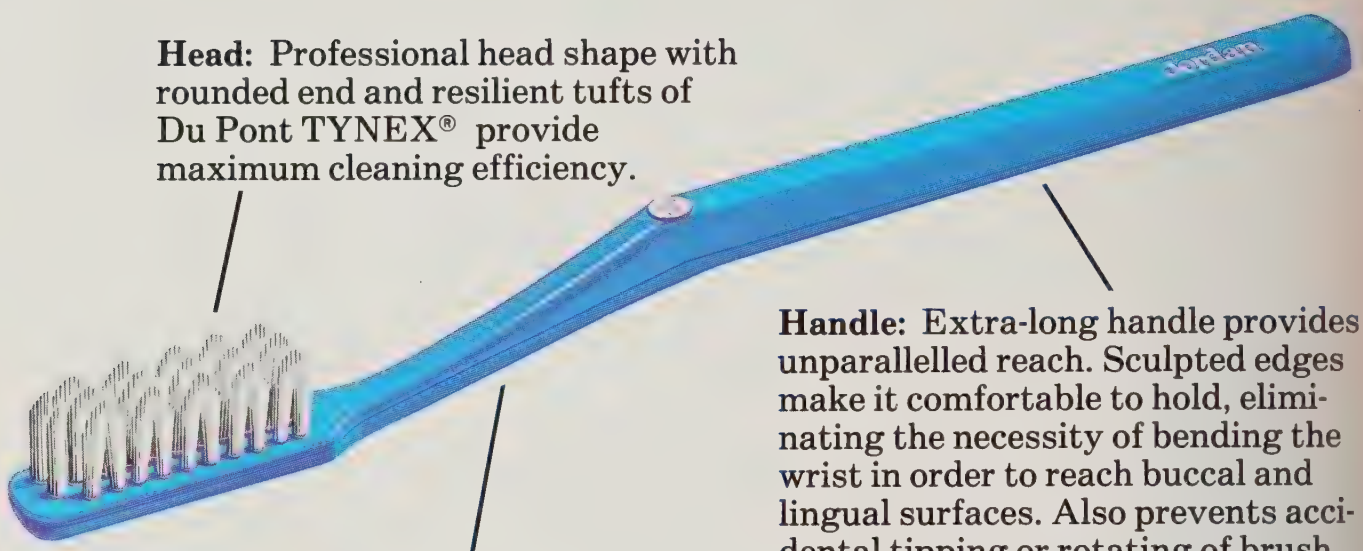

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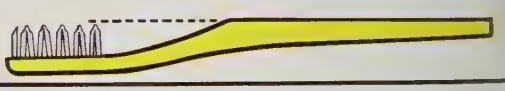

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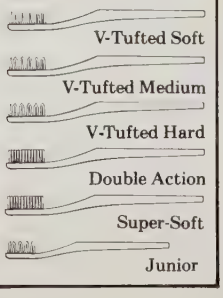

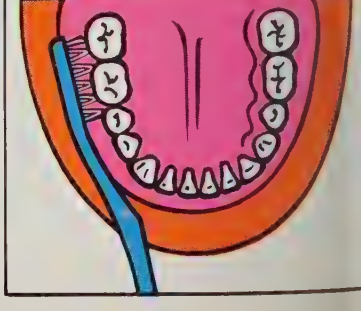

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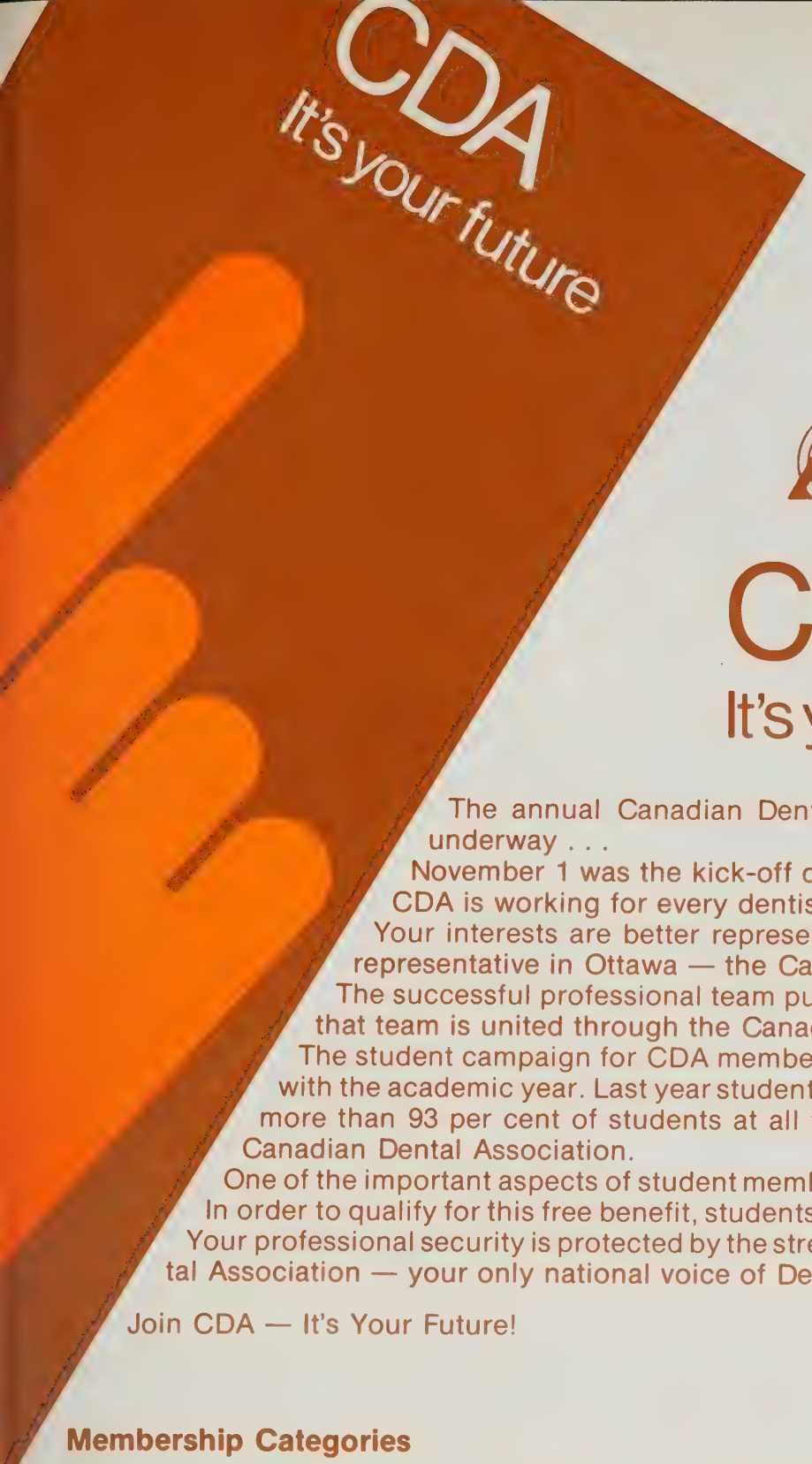

CDA

It's your future

The annual Canadian Dental Association membership campaign is underway . . .

November 1 was the kick-off date of the CDA membership drive.

CDA is working for every dentist in Canada.

Your interests are better represented in federal government through your representative in Ottawa — the Canadian Dental Association.

The successful professional team pulls together — and for dentists in Canada, that team is united through the Canadian Dental Association.

The student campaign for CDA membership actually began September 1 to tie in with the academic year. Last year student membership reached an all-time high with more than 93 per cent of students at all ten Canadian dental faculties joining the Canadian Dental Association.

One of the important aspects of student membership is the graduate insurance package. In order to qualify for this free benefit, students must be CDA members in good standing.

Your professional security is protected by the strength of membership in the Canadian Dental Association — your only national voice of Dentistry.

Join CDA — It's Your Future!

Membership Categories

ACTIVE: $125 per year. To be an active member of CDA, you must be a member of your provincial dental association.

AFFILIATE: $125 per year. This membership category is available in those provinces where membership is voluntary and the dentist is not a member of the provincial association.

ASSOCIATE: $50 per year. Any dentist in good standing who has graduated from a Canadian faculty of dentistry but is not licensed to practise in a Canadian province, or who has retired from practice, or who qualifies through special mitigating circumstances, may apply to CDA Executive Council for associate membership status.

SUPPORTING: $50 per year. These are persons having an interest in and who suport CDA, but do not otherwise qualify. They may become supporting members on admission by CDA Executive Council.

STUDENT: $10 per year. For undergraduate students and graduates who have proceeded *directly* to a graduate program or internship.

LIFE: No fee. Eligible dentists are those who are presently CDA members with 40 years of service to the profession or have reached the age of 65 and whose application for life membership has been approved by the CDA Executive Council.

HONORARY No fee. A person who has rendered valuable service to the Association and has been nominated and elected to this position by the CDA Executive Council.

The Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

L'ADC

Votre avenir

La compagne annuelle de recrutement de l'Association Dentaire
dienne est maintenant en branle, depuis le 1er novembre.
C'est au nom de chaque dentiste canadien que L'ADC se dévoue d
nombreux secteurs. Rôle crucial, l'Association sert de point de conta
le gouvernement fédéral grâce à son siège social à Ottawa.
Que ce soit dans le sport ou dans les affaires, l'ingrédient primordial du
est l'esprit d'équipe. L'âme de l'équipe des dentistes, c'est L'ADC.
La campagne de recrutement des membres étudiants de l'ADC a débute
septembre, afin de coïncider avec l'année universitaire. L'an dernier, cett
pagne a remporté un succès sans précédent, alors que plus de 93 pour cent d
diants des dix facultés de dentisterie au Canada se sont joints à l'Association D
Canadienne.
L'un des avantages les plus importants dont jouissent les étudiants membres es
gime d'assurance à l'intention des diplômes. Pour être en droit de profiter de cett
rance gratuite, les étudiants doivent être membres en bonne et due forme de L'A
C'est grâce à la force de ses effectifs que l'Association Dentaire Canadienne, seul port-
national des dentistes, protège votre sécurité professionnelle.

Joignez-vous à l'ADC — Votre Avenir!

Catégories de membres de l'ADC

Membre actif: $135 par année. L'appartenance à l'association dentaire provinciale est obligatoire.

Membre affilié: $125 par année. Cette catégorie est accessible dans les provinces où l'appartenance à l'association dentaire provinciale est facultative, quand le dentiste a choisi de ne pas s'y joindre.

Membre associé: $50 par année. Tout dentiste en règle, diplômé d'une faculté canadienne de dentisterie, mais non breveté pour exercer sa profession dans une province canadienne, ou un dentiste à la retraite, ou encore tout dentiste admissible en raison de circonstances atténuantes particulières, peut demander le statut de membre associé au Conseil exécutif de l'ADC.

Membre de soutien: $50 par année. Ce sont des gens qui donnent leur appui à l'ADC sans posséder les qualités requises pour y appartenir. Leur admissibilité est décidée Conseil exécutif.

Membre étudiant: $10 par année. À l'intention des é non diplômés ou diplômés qui passent directement à gramme pour diplômés ou à l'internat.

Membre à vie: aucune cotisation requise. Les denti missibles doivent être membres de l'ADC, avoir pra profession de dentiste pendant 40 ans ou plus, ou avoir atteint l'âge de 65 ans. Leur demande doit être vée par le Conseil exécutif de l'ADC.

Membre honoraire: aucune cotisation requise. Cette rie est accessible aux gens qui ont rendu des servi cieux à l'Association et qui ont été mis en candid nommés à ce titre par le Conseil exécutif de l'ADC.

L'Association dentaire canadienne
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For further information on these studies—or any of the 21 Crest clinical studies, write to Crest Professional Services, P.O. Box 355, Station "A", Toronto, Ontario M5W 1C5.

†Beiswanger, B.B., *et al.*: J. Dent. Child. *45*:137, 1978.

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Vol. 45 No. 11

Canadian Dental Association

Journal

de l'Association Dentaire Canadienne

November 1979

novembre 1979

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Abused children — where does a dentist's responsibility begin? See page 580.

Editorial

569 **Forensic dentistry comes of age**

In the News

566 **CDA Retirement Savings Plan**

574 **CFDE appoints new trustees**
Board members now number 11 — eight dentists and three business leaders.

575 **"Toothache" game criticized**
ODA president, Dr. Gary Pitkin, says game for six year olds gives a misleading impression of dentists. Hubert Drouin, CDA executive director points to danger of children swallowing tooth-like components of game.

"Capping" King of the Jungle
When King George needs his teeth fixed it takes a tranquillizing gun, a veterinarian and three dentists.

576 **Forces plan for all dentists**
New grads and experienced dentists may sign up for the Canadian Armed Forces Direct Entry Officer Plan. There's no compulsory period of service.

Mouthguards in
"Properly positioned" mouthguards are a must says the Ontario Federation of School Athletic Associations. Football cleats have also come under scrutiny.

577 **U.S. computer placement**
A system designed to list areas that need a dentist should be self-supporting by 1982.

Faculties
McGill's 75th Anniversary was celebrated in September. News from other faculties of dentistry right across the country.

580 **Forensic Odontology**
What began as an association of a few dentists has grown into a respected branch of dentistry in Canada.

610 Dental and Dental Auxiliary Programs Accredited by CDA

611 Hospital Dental Service and Internship Programs approved by Council on Hospital Services

Letters

566 **Quality educational programs** mean first-rate dental care for Canadians. Ontario policies are a threat says Dr. Richard Ten Cate, dean, Faculty of Dentistry, University of Toronto.

Book Reviews

603 **The Forsyth Experiment**
Reviewed by Dr. Daniel MacIntosh this book outlines a recent (1972-74) study based on the premise that routine restorative procedures can be delegated to free the dentist for more challenging procedures.

604 **The Tooth, the Whole Tooth, and Nothing But . . .**
The author strays from his original purpose of putting dentistry in layman's terms, says Dr. John Christie of Nova Scotia.

608 Announcements
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614 Advertisers' Index

Scientific

587 **Periodontal Support for Dental Implants — Lavelle**
An examination of dental implants provides a useful research model to study the periodontium . . . there may be a need to incorporate a device to dissipate occlusal stress on implant.

597 **Electrical Pulp Testing — Antel and Christie**
All aspects of electric pulp testing are discussed with emphasis on problems in obtaining accurate readings.

596 **Instructions to Contributors**

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novembre 1979

Éditorial

570 **Les sciences légales**

Dr Robert Dorion

L'année dernière le Dr Robert Dorion de Montréal était élu président de la Société canadienne des sciences légales. Il était le premier dentiste à la mériter cet honneur. Le mois dernier l'assemblée annuelle de cette Société a eu lieu à Montréal.

Les Actualités

577 **Les nouvelles des facultés**
L'université Laval a vécu des changements importants au niveau de son administration.

578 **Un nouveau jeu**
Le Dr Gary Pitkin, président de l'ADO, a critiqué le jeu «Toothache» parce qu'il suggère aux enfants "que les visites chez le dentiste sont douloureuses ou que l'extraction des dents est un plaisir pour le dentiste et pour l'enfant . . ."

Un sourire royal
Quand George exige des soins dentaires, personne ne lui pose de questions.

579 **Les protecteurs bucceaux**
Un nouveau règlement oblige tout joueur de football à "porter convenablement son protecteur buccal."

Régime d'épargne-retraite de l'ADC

584 **Assemblée annuelle des sciences légales**
Le Dr Paul Stimson a donné aux délégués des renseignements pratiques au sujet des enfants victimes d'abus ou de négligences.

Erreurs de diagnostic
Aux États-Unis, 75 pour cent des poursuites intentées contre les dentistes sont dues à des erreurs de diagnostic . . .

Lettres

571 **Une seule province risque de tout compromettre**
Le Dr Richard Ten Cate, doyen, École dentaire, Université de Toronto, écrit pour exprimer son inquiétude au sujet des répercussions que les politiques actuelles du Gouvernement de l'Ontario auront sur l'art dentaire au Canada.

Nouvelles Publications

606 **The Tooth, the Whole Tooth, and Nothing But . . .**
ou, le guide du consommateur à la bonne médecine dentaire . . .

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Scientific

587 **Periodontal Support for Dental Implants — Lavelle**
Pour l'étude de la périodontie, un examen des implants dentaire fournit un modèle de recherche pratique . . . il se peut qu'on ait besoin de recourir à un moyen pour calmer les douleurs occlusives qui sont causées lorsqu'on effectue un implant.

597 **Electrical Pulp Testing — Antel and Christie**
On discute tous les aspects des tests effectués sur la pulpe dentaire au moyen d'appareils électriques, en insistant surtout sur les difficultés d'obtenir des lectures exactes.

601 **Guide à l'intention des collaborateurs**

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Des enfants victimes d'abus — Ou commence la responsabilité des dentistes? Voir à la page 584.

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Letters

Ontario threatens quality dental care - Ten Cate

I am writing to express concern about the impact the present Government of Ontario's educational policies will have for Canadian dentistry.

Canada currently has a dental health care delivery system as good as most countries in the world and this delivery system is very much dependent upon the quality of the practitioner. This quality, in turn, is largely the result of educational programs provided by the ten Canadian Schools of Dentistry.

The University of Toronto is the largest undergraduate, post-graduate and graduate school in the nation and also undertakes a major dental research effort.

Toronto graduates 128 dentists a year, largely for the Province of Ontario, but from this pool come many future specialists and academic staff. Its postgraduate courses constitute almost 70 per cent of those available in Canada (thereby providing the major source of Canadian trained specialists) and through its combined programs (Ph.D plus specialty training), U. of T. provides future academic staff for Canadian dental schools. Its staff also provide a consultative resource widely used at provincial, national and international levels.

The research activity of the University of Toronto has gained an international reputation. As dental research in Canada is almost only carried out by universities, Toronto contributes a significant role to the national research effort. Such research activity, of course, provides an essential background for our graduate, postgraduate and undergraduate programs.

Over the past six years funds for education in Ontario have declined drastically. Ontario, the second richest province in Canada, now ranks eighth in its dollar support of universities per student enrolled. It was second in 1974. Put another way, Ontario now provides about $1,000 less operating grant per full-time equivalent student than the rest of Canada — $1,800 below Quebec for 1979-1980. The universities in Ontario have responded to this declining fiscal support by managing on less and applying reductions "across the board" — a policy which eventually results in mediocrity. My own university is coming to a decision that this "across the board" policy cannot continue and full support will have to be given to its strongest divisions at the expense of its weaker ones to allow the former to apply innovative ideas and programs.

As dean at Toronto, I must convince the university administration that dentistry is a division which represents a national resource (better than many other divisions that can also make similar claims) and receive full funding from the university to allow me to take much needed initiatives. The alternative is to reduce either our research involvement, or eliminate some postgraduate programs. Other Canadian schools will have to step in and make up the deficit. Schools will have to be prepared to assemble strong research strengths at the expense of educational dollars. If this is not possible (strong research strengths are not achieved overnight) steps must be taken to ensure Toronto is capable of maintaining its present national role and receive funding from extra-provincial resources. This, it seems, is the only solution, unless other provinces are prepared to recognize a major commitment to a national role in dental education and research.

Canadian dentistry, if it is at all concerned about its future, cannot ignore the events that are currently taking place in Ontario. It must lobby both at the provincial and federal levels to ensure quality educational programs established over the years, which have resulted in a first-class level of dental care for Canadians, threatened by the actions of a single province.

Dr. Richard Ten Cate,
Dean,
Faculty of Dentistry,
University of Toronto.

The Journal of the Canadian Dental Association is pleased to make this space available for "Letters to the Editor". All letters must be signed and the editor reserves the right to edit communications according to space requirements.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on September 30, 1979.

Common Stock Fund	$45.358
Fixed Income Fund	$22.361
Guaranteed Fund	$16.333
Balanced Fund	$12.096

Total assets (market value) of the plan were $34,436,506.

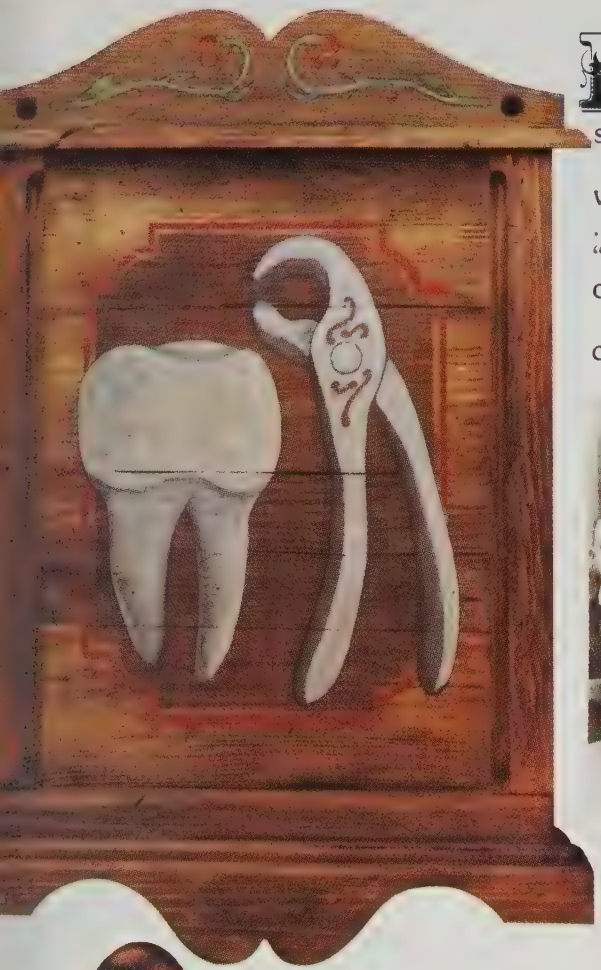
The previous month's figures, as of August 31, 1979, stood as follows:

Common Stock Fund	$45.495
Fixed Income Fund	$22.517
Guaranteed Fund	$16.203
Balanced Fund	$12.269

Total assets (market value) of the plan were $34,667,241.

For further information write to: Canadian Dental Service Plans Inc., P.O. Box 7500, Station A, Toronto, Ontario M5K 1A0.

We've come a long way together



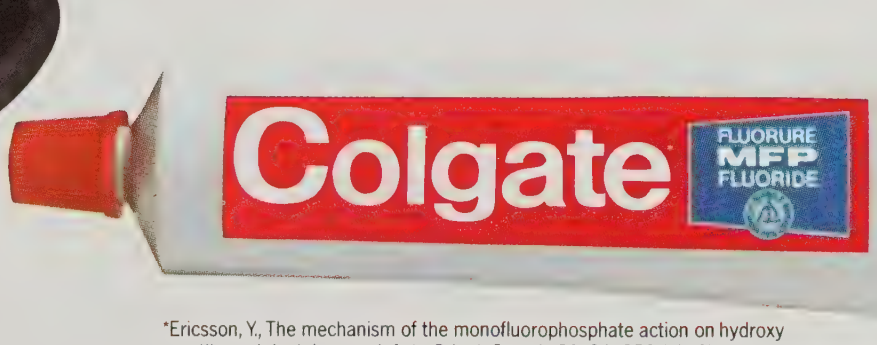
If you were practising dentistry 100 years ago, you probably had another trade as well—anything from blacksmith to travelling salesman. Because you couldn't make a living just as a dentist.

But dentistry was changing; and if you were serious about your work you were beginning to recognize the merits of preventive dentistry ...which meant teaching the public that dentistry was more than "pulling the tooth that hurts". It was about this time that the Colgate company introduced Colgate toothpaste.

As people learned that keeping teeth healthy required day-to-day care, they learned to care for them with Colgate.

By the turn of the century most dentists were no longer common tradesmen, but educated professionals; and the Canadian Dental Association was founded so they could share their skill, their knowledge and their concern for the integrity of the profession. Although more and more toothpastes were now being introduced, Colgate's reputation as an effective dentifrice was already well-established. More and more dentists were recommending Colgate to their patients.

As the century progressed, many biological and technical advances were made in the field of dentistry, one of the most significant of which was the increasing use of fluoride to reduce the incidence of cavities. The first fluorides to be used by dentists were simple in composition: sodium fluoride and stannous fluoride. But the Colgate company was developing its own improved fluoride, MFP (sodium monofluorophosphate). Research showed that this fluoride reacts with the tooth enamel to form fluorapatite*, which makes the tooth more resistant to decay. Tests also showed that staining of teeth, which can be a problem with stannous fluoride, isn't a problem with MFP. Reformulated Colgate with MFP was so effective that it was one of the first toothpastes to receive official recognition from the Canadian Dental Association†. And Colgate** with MFP is still one of the most effective toothpastes in the fight against cavities today.



*Ericsson, Y., The mechanism of the monofluorophosphate action on hydroxy apatite and dental enamel, Acta Odont, Scand., **21,** 341-358 (1963).

† Colgate Toothpaste contains sodium monofluorophosphate, which is, in our opinion, an effective decay preventive agent, and is of significant value when used in a conscientiously applied program of oral hygiene and regular professional care.

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FORENSIC DENTISTRY COMES OF AGE

This month's Journal special feature report takes a look at the science of forensic dentistry.

For the past year, a dentist has been president of the Canadian Society of Forensic Science. Dr. Robert Dorion of Montreal, Quebec, is the first dentist ever elected chief executive of this organization.

The Canadian Society of Forensic Science was founded in 1953. It now boasts a membership of more than 450 chemists, coroners, lawyers and judges and others in the field including dentists. Their Annual Meeting was held last month in Montreal and attracted speakers and delegates from both Canada and the United States.

It wasn't until 1966, under the direction of Dr. Kenneth Pownall, registrar of the Royal College of Dental Surgeons of Ontario and Dr. James Purves, that the decision was made to establish a nation-wide society of odontologists.

The Canadian Society of Forensic Odontology (CSFO) was the result and the organization was introduced to Canadian dentists at the annual convention of the Canadian Dental Association in Winnipeg in 1970.

Thirteen dentists attended the inaugural meeting and Dr. Purves was elected president. Dr. Ed White was vice president and Dr. Knud Petersen was named secretary.

Just three days later, these pioneering dentists were confronted with their biggest challenge — an Air Canada DC-8 carrying 109 passengers crashed in Woodbridge, Ontario. Everyone on board was killed and positive identifications of the charred bodies had to be made. Where ante mortem dental records were available, 79 per cent of the crash victims were identified. Primary identification through dental investigation was made in 53 cases.

One year after its first meeting, members of the Canadian Society of Forensic Odontology agreed to merge with the Canadian Society of Forensic Science (CSFS). In 1972 the Odontology Section, with 86 members, became the largest segment of the forensic association.

At this year's Annual Meeting of the Forensic Science Association, two full days and other time slots were devoted to odontology. Forensic dentistry is not limited to post mortem identification — other matters of law are involved. Peter Graham, a Montreal lawyer, for example, discussed recent developments in dental litigation. Graham pointed out that just as the lawyer is a novice in the field of dentistry, so the dentist is a novice in law.

Other speakers focussed on malpractice suits and the legal responsibility of the dentist to fully inform his patients about treatments.

The role of dentists expert in identifying and matching bite marks was also looked at and, of course, the identification of accident and homicide victims was discussed.

With over 100 members, the Forensic Odontology Society, boasts four members who have official status as consultants in forensic odontology to law enforcement agencies.

Clearly, what started out as an untried association of professionals in 1971 has evolved into a respected and valued branch of dentistry in Canada today.

E.M.

Éditorial

Les Sciences légales

Ce mois-ci, le Journal jette un regard sur l'art dentaire en rapport avec la loi.

L'année dernière, un dentiste agissait comme président de la Société canadienne des sciences légales. Le Dr Robert Dorion de Montréal, Québec, devient ainsi le premier dentiste à mériter cet honneur.

La Société fut fondée en 1953. Elle s'enorgueillit de posséder plus de 450 membres parmi lesquels se trouvent des chimistes, des coroners, des avocats, des juges ainsi que d'autres membres des grandes professions, l'art dentaire compris. Leur assemblée annuelle, qui a eu lieu à Montréal le mois dernier, a attiré des conférenciers et des délégués venus du Canada et des États-Unis.

Ce fut en 1966 seulement qu'il fut décidé de créer une société nationale à l'intention des odontologistes. Présidèrent à cette décision le Dr Kenneth Pownall, régistraire du Collège royal des chirurgiens dentistes de l'Ontario, et le Dr James Purves.

Ainsi naquit la Société canadienne d'odontologie judiciaire et, à l'occasion du congrès annuel de l'Association dentaire canadienne qui se tint à Winnipeg en 1970, cet organisme fut présenté aux dentistes canadiens.

Treize dentistes assistèrent à l'assemblée d'inauguration. Furent nommés président, vice-président et secrétaire les Drs Purves, Ed White et Knud Petersen respectivement.

Trois jours plus tard seulement, ces dentistes d'avant-garde durent relever leur plus grand défi. Un appareil DC-8 d'Air Canada s'était écrasé avec 109 passagers à son bord, à Woodbridge, en Ontario. Il n'y eut aucun survivant et il fallut procéder à l'identification des corps carbonisés. 79 pour cent des victimes purent être identifiées grâce à leurs dossiers dentaires *ante mortem*. Un examen dentaire permit une première identification dans 53 cas.

Une année plus tard, les membres de la Société canadienne d'odontologie judiciaire acceptèrent de fusionner avec la Société canadienne des sciences légales. En 1972, la division d'odontologie devenait, avec ses 86 membres, le groupe le plus important de l'organisme.

Cette année, à l'assemblée annuelle, deux journées complètes et d'autres périodes suplémentaires furent consacrées à l'odontologie. Les dentistes légistes ne procèdent pas seulement à des identifications *post mortem*. Ils ont aussi d'autres préoccupations en matière de loi. Ainsi l'avocat montréalais, Peter Graham, fit part des faits nouveaux touchant les litiges qui surgissent dans les milieux dentaires. Il remarqua que, si l'avocat est un novice en art dentaire, le dentiste, lui, est un novice en droit.

D'autres conférenciers se sont penchés sur les problèmes causés par les poursuites judiciaires intentées contre les praticiens négligents. Ils ont rappelé aux dentistes que la loi les oblige à renseigner complètement leurs patients sur les traitements qu'ils leur prescrivent.

Par ailleurs, on a défini le rôle que jouent les dentistes experts appelés à identifier et à comparer les empreintes dentaires. Bien entendu, on a aussi parlé de l'identification des personnes tuées ou mortes accidentellement.

La Société d'odontologie judiciaire compte plus de cent membres dont quatre, fait-elle remarquer avec fierté, agissent officiellement comme conseillers en odontologie judiciaire auprès des organismes chargés de faire respecter la loi.

Au début, la Société était une jeune association de professionnels qui devait faire ses preuves. Aujourd'hui, elle tient une place de choix dans le monde dentaire canadien et il est évident que sa renommée n'est point surfaite.

E.M.

Une seule province risque de tout compromettre

J'écris pour exprimer mon inquiétude au sujet des répercussions que les politiques actuelles du Gouvernement de l'Ontario auront sur l'art dentaire au Canada.

Actuellement, les services dentaires offerts au Canada se comparent avantageusement à ceux des autres pays. La qualité de ces services dépend grandement des aptitudes du praticien. Or celui-ci développe ses aptitudes grâce aux programmes d'études établis par les écoles dentaires canadiennes.

Toronto est le siège de la plus importante université canadienne qui rassemble le plus grand nombre d'étudiants en art dentaire non diplômés ou licenciés, et qui pousse le plus la recherche dentaire.

128 dentistes y sont reçus chaque année. La plupart établissent leur pratique en Ontario, mais plusieurs ambitionnent de devenir spécialistes ou de se joindre au corps professoral. Les cours que l'Université offre aux étudiants licenciés comptent pour 70 pour cent de ceux qui se donnent au Canada. Aussi, grâce à son programme conjoint (le Doctorat en Philosophie et l'entraînement spécialisé), forme-t-elle les futurs enseignants des écoles dentaires canadiennes et la plupart des spécialistes canadiens. De plus, son personnel est très souvent consulté par des organismes provinciaux, nationaux et internationaux.

Les recherches poursuivies par l'Université de Toronto lui ont acquis une renommée internationale. Comme la presque totalité de la recherche dentaire menée au pays se fait dans les universités, la contribution torontoise est considérable. Bien entendu, cette recherche est le complément essentiel des programmes d'études offerts aux non diplômés, aux diplômés et aux licenciés.

Au cours des six dernières années, les subventions que l'Ontario accorde à l'éducation ont diminué considérablement. Bien que ses richesses la classent au deuxième rang parmi les provinces canadiennes, l'Ontario occupe seulement la huitième place pour les subsides qu'elle verse aux universités par étudiant. En 1974, elle occupait la seconde place. En d'autres mots, pour chaque étudiant à temps plein qui s'inscrit dans une discipline semblable, l'Ontario alloue environ $1,000.00 de moins que les autres provinces du Canada, — $1,800.00 de moins que le Québec pour 1979-1980, — afin d'aider les universités à couvrir leurs frais administratifs. Parce que l'aide subventionnelle est moindre, les universités de l'Ontario sont obligées de se débrouiller avec moins d'argent et de réduire leurs dépenses dans tous les domaines. Aussi risquent-elles désormais de sombrer dans la médiocrité. À l'Université de Toronto, on a décicé que cette situation ne pouvait pas durer et qu'il fallait, quitte à négliger les disciplines secondaires, fournir un appui total aux plus importantes afin qu'elles puissent tracer de nouveaux programmes et lancer de nouvelles idées.

Quant à moi, je dois, comme doyen de l'École dentaire de l'Université de Toronto, convaincre l'administration que la médecine dentaire est une discipline qui constitue, plus que n'importe qu'elle autre discipline qui ferait la même revendication, une ressource nationale et qu'elle doit, par conséquent, allouer à l'École les fonds dont elle a grandement besoin pour entamer de nouveaux projets. Sinon l'École devra soit restreindre sa participation à la recherche, soit éliminer certains programmes à l'intention des étudiants diplômés. De plus, d'autres écoles canadiennes devront apporter leur contribution et aider à combler les déficits. Elles devront également assembler une puissante équipe de chercheurs, même s'il faut, pour ce faire, grever le budget réservé à l'éducation. Si ce projet ne peut se réaliser, — car on n'assemble pas une puissante équipe de chercheurs du jour au lendemain, — il faudra prendre des mesures pour que l'école dentaire de Toronto soit assurée de continuer à jouer son rôle national actuel et pour qu'elle puise des subsides en dehors de l'Ontario. Il semble que ce soit là l'unique solution, à moins que les autres provinces veuillent assumer ce rôle national et qu'elles soient prêtes à contribuer financièrement à la recherche dentaire.

Si nous nous soucions tant soit peu de l'avenir de l'art dentaire au Canada, nous ne pouvons ignorer ce qui se passe actuellement en Ontario. Nous devons harceler les gouvernements fédéral et provinciaux pour que les programmes d'études maintiennent les normes de qualité établies au cours des années passées. Grâce à ces programmes, les Canadiens bénéficient de soins dentaires excellents. Aussi est-il malheureux que les mesures d'une seule province risquent de tout compromettre.

Dr Richard Ten Cate
Doyen,
École dentaire,
Université de Toronto.

Le Journal de l'Association Dentaire Canadienne est heureux d'offrir cet espace aux lecteurs désireux d'envoyer des "Lettres à la rédaction". Toutes les lettres doivent être signées et la rédactrice en chef se réserve le droit de les raccourcir si le manque d'espace l'impose.

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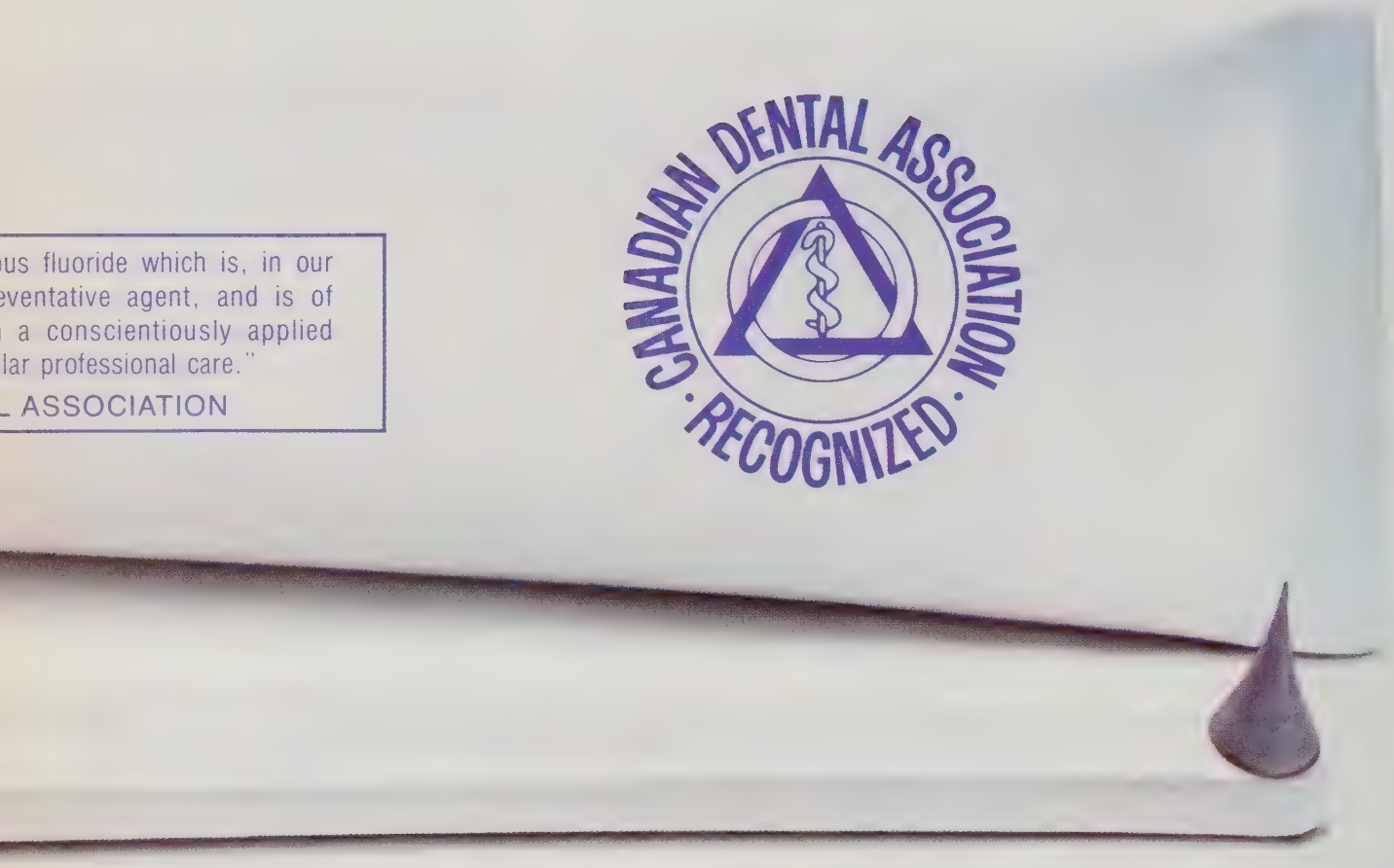

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CANADIAN DENTAL ASSOCIATION

In the News

CFDE appoints new trustees

Four dentists have been appointed trustees of the Canadian Fund for Dental Education increasing the number of CFDE Board members to 11 — eight dentists and three business leaders. Previously ten trustees sat on the CFDE Board.

The new trustees include Dr. Marjorie Jackson, professor in the Continuing Education Department at the University of Toronto; Dr. David Peters, a past president of the Canadian Dental Association and a general practice dentist in St. John's, Newfoundland; Dr. Donald Upton, past chairman of the Canadian Society of Forensic Sciences (Dental Section), of Calgary, Alberta; and Dr. Alain Vaillancourt, dean of the Faculty of Dental Medicine at the University of Montreal and a former member of CFDE's Advisory Committee on Fellowship Selection.

According to a decision made at the CFDE Board of Trustees' meeting this year, the chairman will be appointed for a three year period exclusive of any prior service as a trustee. Trustees are appointed for a three year term and are eligible for reappointment for a second three year term.

Retiring trustees are Dr. Michael Cripton of Moncton, New Brunswick; Dr. Harold Hillenbrand, Chicago, Illinois; and Dr. John Neilson, Winnipeg, Manitoba. Dr. Neilson had served the Board for three years as chairman and completed a full term in office along with Dr. Cripton and Dr. Hillenbrand.

Wedded Bliss

Ever notice how some dental suppliers pursue you and woo you . . . then let you down when you need them most? You'd be far better off with a responsible full-line supplier, like Denco, who shares your concern for high standards of dental treatment . . . and who goes to extraordinary lengths to deliver the kind of products and services you need, when you need them.

Think about it, Doctor. Your expertise . . . our quality of goods and services. The ideal match.

We're responsive and reliable . . . and, we won't leave you in the lurch.

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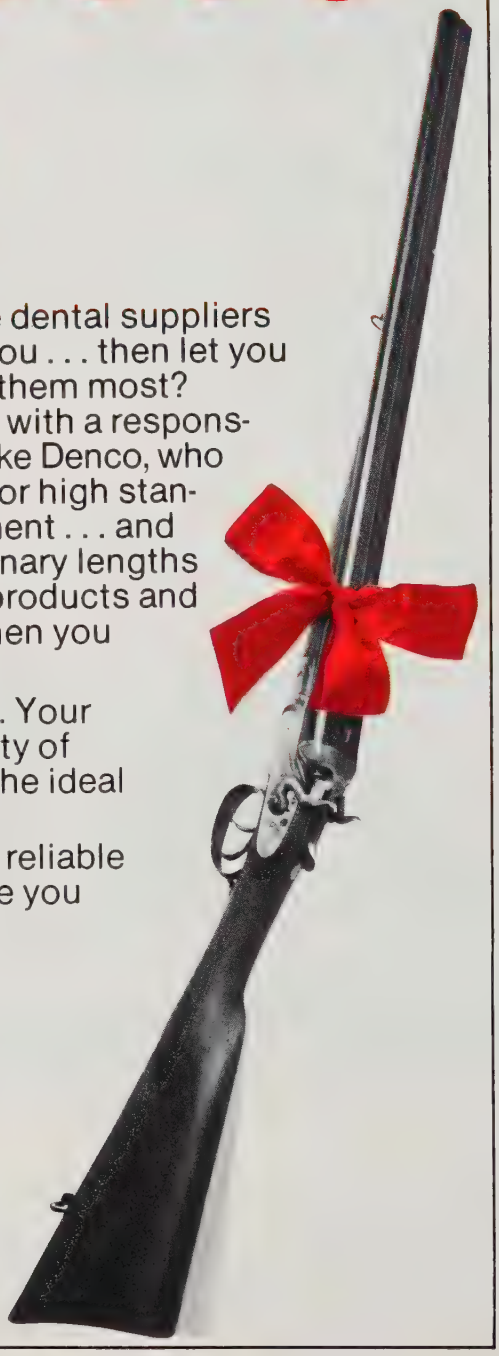


Dr. S. Brayton elected president

Dr. Stephan M. Brayton, associate professor and head of Endodontics at Dalhousie University, Halifax, was recently elected president of the Canadian Academy of Endodontists.

Dr. Brayton, a graduate of Tufts University School of Dental Medicine, interned at Michael Reese Hospital and Medical Centre, Chicago. He has done a tour of duty with the U.S. Naval Dental Corps.

Since the completion of his post graduate studies in Endodontics at Tufts, Dr. Brayton has been residing and practising endodontics in Halifax.

Dr. Brayton is active in the field of Continuing Education and enjoys travelling and sailing.

"Toothache" game criticized

Dr. Gary Pitkin

The Ontario Dental Association (ODA) has strongly criticized a newly-marketed game "Toothache" claiming it could be psychologically injurious to children.

In a letter to the Product Safety Branch of the Department of Consumer and Corporate Affairs, Hubert Drouin, executive director of the Canadian Dental Association has further outlined the concerns of members of the dental profession that the tooth-like components of the game could be swallowed easily by a child.

Alfons Reubens, vice president of Waddington's House of Games, Brampton, Ontario, which manufactures the toy, describes the game as "fantastic" and says children "love it."

The objective of the battery-operated toy, recommended for children six years of age and older, according to the instructions, is to extract small plastic teeth from a patient using toy mirrors and probes, without setting off an electric screamer.

The patient is a large toothy face in a plastic dental chair and the screamer is run by a nine volt battery.

In a recent press release, Dr. Gary Pitkin, ODA president, said the game is "sick and senseless." He said "it is unprincipled to encourage unnecessary and unfounded fear in a child. Young children to whom the game is directed are most impressionable and fears learned in the formative years can last forever."

According to Mr. Reubens, the game has gone through "rigorous testing" in Europe, the United States and Japan. It was developed and originally marketed in the United Kingdom. There is no approval sign on the package itself, but Mr. Reubens said the toy "is being tested in Canada." It is on sale at Sears.

Although Dr. Pitkin also expressed concern that the tooth-like pieces of the game are small enough to be swallowed by a child, the thrust of his criticism of "Toothache" is that it suggests to children "that visits to the dentist's office are painful and that extracting teeth is fun for the dentist and the child.

"We want children's teeth to last a life time and any suggestion that dental extractions are humorous or routine is crass," said Dr. Pitkin.

"Capping" King of the Jungle

When George needs his teeth fixed, no one asks any questions. George is a lion at the Saskatoon Forestry Farm in Saskatchewan. His dentists are Dr. S.A. Chaney, Dr. D.B. Gilboe and Dr. Mark Klepacki all of Saskatoon.

George had three teeth that were in particularly bad shape from long hours of chewing the metal bars on his cage and the dentists were called in to try their expertise on the jungle cat.

Dr. Jerry Haigh, the Zoo's veterinarian, zeroed in on George with a dart full of sedative shot from an air gun. It took 20 minutes just to slow George down and before the dentists could begin their handiwork he was given another injection.

Drs. Chaney, Gilboe and Klepacki each chose a tooth. They removed the infected tissue and nerves in the roots and filled the cavern with pipe of chrome-cobalt alloy. An impression was taken and George's teeth will be capped.

In three hours it was all over — when the caps are in place George will have a smile fit for a King.

Society News

Saskatchewan Dental Hygienist Association . . . has announced its executive for the next year. President is Nancy Bateson; president-elect, Irene Ekberg; secretary, Janice Roland; and treasurer, Barb Cogger.

Canadian Society of Oral and Maxillofacial Surgeons . . . Book Award Winner from the University of Western Ontario is Dr. Don MacNeil, formerly a student at UWO who is now interning at St. Joseph's Hospital in London, Ontario.

British Columbia Pediatric Dentist Society . . . has appointed new officers including Dr. M. Nacht, president; Dr. G.D. Derkson, vice president; and Dr. T. Tam, secretary-treasurer.

Ottawa Dental Society . . . A refresher course for re-certification in cardio-pulmonary resuscitation will take place November 20 and 21 at a cost of $15 per person. Contact Dr. Douglas Smith in Ottawa at 232-7880 . . . The Mental Retardation Office in Ottawa (Ontario Ministry of Community and Social Services) is helping to develop a Retardation Information Handbook to provide an overview of services available to retarded people and their families in the Ottawa area. The ODS is preparing a roster of dentists interested in the field. The survey form is available from the ODS.

Forces plan for all dentists

There is no compulsory period of service attached to the Direct Entry Officer Plan offered by the Canadian Forces Dental Services (CFDS). The program is aimed at both new graduates and experienced dentists.

According to a recent report in the newsletter of the College of Dental Surgeons of Saskatchewan, the initial engagement is for a period of four years, but officers can be released from this commitment for personal reasons at any time with six months notice.

Professional post graduate training is part of the service in the CFDS and continuing education programs range from attendance at conventions to clinical courses at the CFDS School and courses at American military dental facilities and civilian universities for full certification in specialty disciplines.

On entering the services as a dentist, the recruit is promoted to the rank of Captain. Thirteen weeks military training takes place in the summer following enrolment.

Lieutenant-Colonel Bob Fortier, who can be reached at (613) 992-6276. is the man to call for more information about the Canadian Forces Dental Services.

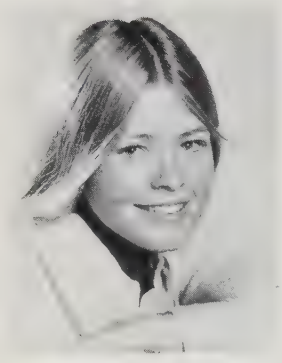
Mouthguards in

A new regulation established by the Ontario Federation of School Athletic Associations makes it mandatory for football players to wear "properly positioned mouthguards."

A previous rule had required players to wear mouthguards, but when one student showed up on the field last season with his guard on a string around his neck the stipulation "properly positioned" was added.

Restrictions have also been placed on the style of boots acceptable for playing on natural turf. The seven-cleated, football shoe with metal tipped spikes has been outlawed and players are now required to wear shoes with a minimum of 12 cleats per sole. The minimum diameter of the cleat tip must be three-sixteenths of an inch and the maximum length of the cleat is half an inch.

Players will be removed from the game for wearing illegal spikes but no team penalty will be assessed. No player will be allowed on the field this season without a properly positioned mouthguard, says the OFSAA.



For her–
and everyone else who has a sweet tooth–
now there are sweets which do not promote caries.

Thanks to Xylitol from Hoffmann-LaRoche.

A massive reduction of the dental caries increment rate has been observed with total and partial substitution of dietary sucrose by xylitol.* Similar results have also been obtained in several experimental studies. These findings have to be viewed as natural consequences to the microbiological and biochemical behavior of xylitol. These include the stimulation of salivary secretion, elevation of certain electrolyte concentrations of oral fluid, increased buffering of saliva, and increase or maintenance of high pH in oral fluid and plaque, lack of suitability for microbial metabolism, influence on enzymatic activities, and probably also the increased content of certain amino acids of oral fluid. As an entity, peroral xylitol should be considered to stimulate a number of existing defense mechanisms to caries.

Recent metabolic studies have further indicated the safety of perorally administered xylitol at the present dosage levels. Comprehensive blood and urinary analyses on human subjects thus revealed no untoward side effects. *Abstract of paper by Dr. A. Scheinin, Canadian Dental Association, September 1979.*

**Acta Odontologica Scandinavica, Vol. 33, Supp. 70, 1975.*

For more information, write: **Xylitol,**
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U.S. computer placement

A computer at the University of Minnesota is helping communities find dentists.

Computers are gradually moving into dentists' offices (see Journal, September, 1979) but this larger unit in Minnesota is the nucleus of a first-of-its-kind national placement service for health care professionals, according to the American Dental Association Bureau of Public Information.

The system is designed to list all federally designated shortage areas and to coordinate its work with the National Health Service Corps program in the United States for the placement of health professionals in underserviced areas of the country.

Initially, the National Health Professions Placement Network (NHPPN), as the computer service is called, will place only dentists and dental auxiliaries. Eventually, physicians, nurses and other health professionals will be added to the network.

The computer system is being funded by $1.17 million from the American Dental Association Health Foundation and the W.K. Kellogg Foundation. It is estimated that by 1982 the system will be self-supporting.

Dr. Brass retires

Dr. George Brass, professor emeritus, University of Manitoba, retired August 31. He was honored with a reception at the University Centre late last month.

Dr. Brass was on the staff of the University of Manitoba Faculty of Dentistry for 21 years. He was first head of the Restorative Dentistry Department, a position he held until 1972.

A scholarship in the name of Dr. Brass will be established.

Faculties/ Facultés

UNIVERSITY OF SASKATCHEWAN . . . Dr. R. Cram is now with the Department of Pediatric Dentistry . . . Dr. J. Epstein has joined the Diagnosis and Oral Radiology Department . . . Dr. V. Bazant will be teaching in Oral Pathology.

UNIVERSITY OF TORONTO . . . The school graduated 128 new dentists, six teachers of dental hygiene (B.Sc. D. program), 11 specialists and 13 future academic staff from its graduate programs at the end of the 1978/79 academic year.

UNIVERSITY OF WESTERN ONTARIO . . . Dr. J.P. Sapp has left UWO for an academic post at the University of California in Los Angeles.

UNIVERSITY OF BRITISH COLUMBIA . . . Dr. Douglas Yeo has been appointed associate dean of Student Affairs.

DALHOUSIE UNIVERSITY . . . Dr. I.K. Lubertsky has been named professor emeritus at the University.

UNIVERSITÉ LAVAL . . . L'École a vécu des changements importants au niveau de son administration. Un directeur par intérim (Dr Roland Vallée) a été désigné pour remplacer l'ancien directeur (Dr Paul Simard). De plus, un nouveau directeur adjoint aux études (Dr Laurent Dufour) a été nommé. Le Dr Roger Tanguay, directeur adjoint aux cliniques et services et le Dr Luc Trahan, secrétaire, complètent le personnel administratif de l'École.

MCGILL UNIVERSITY . . . September, 1979 marked the 75th anniversary of the registration of students at McGill's Faculty of Dentistry. Dr. Mervyn Rogers' book "The McGill Dental School" will be released as part of the celebration of this event. Dr. Rogers is a former assistant dean of the Faculty.

UNIVERSITY OF MANITOBA . . . A recent graduate of the University of Manitoba Faculty of Dentistry, Dr. Joy Richman, was at the American Dental Association Convention in Dallas last month to receive the first prize in the American Dental Public Health contest for a Community Dentistry Project conducted by an undergraduate.

UNIVERSITÉ DE MONTRÉAL . . . Le Conseil de l'Université a nommé un nouveau doyen pour un mandat de quatre ans — Alain Vaillancourt (Journal, mai, 1979). La direction est composée des personnes suivantes: Dr Vaillancourt, doyen; Dr Guy Boyer, vice-doyen à l'éducation permanente; Dr Denis Forest, vice-doyen aux affaires professorales; Dr Jean Yergeau, secrétaire de la Faculté; Dr Julien Bussières, adjoint au doyen aux affaires étudiantes; Dr. Pierre Desautels, adjoint au doyen au curriculum; Dr James Lund, adjoint au doyen à la recherche; et le Dr Pierre Hélie, directeur des cliniques.

UNIVERSITY OF ALBERTA . . . The mobile dental clinic is no longer portable because of damage to its undercarriage in its last move from Manning to High Level, Alberta in the northern part of the province. The Faculty of Dentistry at U of A will be cooperating with the Provincial Department of Social Services and Community Health in designing and operating two new mobile clinics that will be on stream in the spring of 1980.

Les Actualités

Un nouveau jeu

Un nouveau jeu appelé "Toothache" (Mal de dent) a été mis sur le marché. L'Association dentaire de l'Ontario (ADO) s'y oppose énergiquement, alléguant qu'il pourrait être psychologiquement nuisible pour les enfants.

Le jeu est fabriqué par la Waddington's House of Games, à Brampton, en Ontario. De l'avis de M. Alfons Reubens, vice-président de la firme, les enfants "aiment ce jeu" et le trouvent "fantastique."

Il s'agit d'un jouet à piles pour les enfants de six ans et plus et le jeu consiste à extraire de la bouche d'un patient, à l'aide de miroirs et de sondes en miniature, de petites dents en plastique sans déclencher un cri électrique. Le patient est un large visage garni de dents et installé dans un fauteuil en plastique. Le cri est actionné par une pile de neuf volts.

Selon M. Reubens, le jeu a été "testé de façon rigoureuse" en Europe, aux États-Unis et au Japon. C'est au Royaume-Uni qu'il a d'abord été fabriqué et mis au point. Bien que son emballage ne porte aucun sceau d'approbation, le jeu est, toujours selon M. Reubens, "testé au Canada actuellement." La vente en a été confiée aux magasins Sears.

Dans un récent communiqué de presse, le Dr Gary Pitkin, président de l'ADO, a, pour sa part, jugé ce jeu "bête et stupide." Il a déclaré qu'il fallait être "dépourvu de scrupules pour inspirer à un enfant une peur inutile et injustifiée. Le jeu est destiné à de jeunes enfants impressionnables et les peurs qu'ils ressentent au cours de leurs années de formation peuvent durer toute leur vie."

De son côté, M. Hubert Drouin, directeur général de l'Association dentaire canadienne, a adressé une lettre au ministère de la Consommation et des Corporations, à la division de la Sécurité des produits. Exprimant l'inquiétude ressentie par les membres de la profession dentaire, il a fait remarquer qu'un enfant pouvait facilement avaler les pièces du jeu qui ressemblent à des dents.

Le Dr Pitkin a exprimé la même inquiétude. Toutefois, il a critiqué davantage le jeu parce qu'il suggère aux enfants "que les visites chez le dentiste sont douloureuses ou que l'extraction des dents est un plaisir pour le dentiste et pour l'enfant.

"Nous voulons que les enfants conservent leurs dents toute la vie," a conclu le Dr Pitkin. "Aussi est-il stupide de vouloir leur faire croire que l'extraction des dents est un exercice plaisant ou routinier."

SDFC est pour tous

Il n'y a aucune période de service obligatoire liée au Programme d'entrée directe pour les officiers (Direct Entry Officer Plan) offert par le Service dentaire des Forces canadiennes. Ce programme est destiné aux nouveaux diplômés aussi bien qu'aux dentistes professionnels.

Selon un bulletin publié récemment par le Collège des chirurgiens dentistes de la Saskatchewan, l'engagement initial se fait pour une période de quatre ans, mais tout officier peut, pour des raisons personnelles, être démobilisé après six mois d'avis.

La formation professionnelle des diplômés fait partie des services offerts par le SDFC. De nombreux programmes ont été établis pour ceux qui veulent poursuivre leurs études et obtenir un certificat dans une spécialité dentaire. Ils comprennent la fréquentation des congrès, des cours en clinique à l'École du SDFC, des cours dans les laboratoires dentaires des bases militaires américaines et des cours dans les universités.

Dès qu'il entreprend son service militaire, tout dentiste est promu capitaine. Pendant treize semaines, au cours de l'été qui suit son recrutement, il reçoit sa formation militaire.

Le lieutenant-colonel Bob Fortier se fera un plaisir de vous fournir plus de renseignements sur le Service dentaire des Forces canadiennes. Vous êtes invités à communiquer avec lui en composant le (613) 992-6276.

Un sourire royal

Quand George exige des soins dentaires, personne ne lui pose de questions. En effet, George est un lion qui réside à la ferme forestière de Saskatoon, en Saskatchewan. Ses dentistes sont les docteurs S.A. Chaney, D.B. Gilboe et M. Klepacki, tous de Saskatoon.

Pour avoir trop mordillé les barreaux métalliques de sa cage, l'hôte royal avait trois dents en mauvais état. Aussi fit-il appel aux talents de ses dentistes.

À l'aide d'une seringue à injections qu'il lui tira avec un fusil pneumatique, le Dr Jerry Haigh, vétérinaire du zoo de Saskatoon, administra un sédatif à George. Celui-ci mit vingt minutes à se calmer et, avant que les dentistes ne se missent à l'oeuvre, le Dr Haigh lui donna une seconde injection.

Les docteurs Chaney, Gilboe et Klepacki choisirent chacun une dent. Après avoir retiré les tissus et les nerfs des racines infectées, ils remplirent la cavité avec une canule composée d'un alliage de chrome et de cobalt. Ensuite, ils prirent des empreintes et, plus tard, ils feront la pose des couronnes dentaires.

L'opération a duré trois heures. Quand ses couronnes seront en place, George aura une raison de plus pour afficher un sourire royal.

Un vaccin

Deux microbiologistes de Sydney, en Australie, travaillent en collaboration avec des savants américains afin de mettre au point un vaccin qui devrait protéger le sujet contre la carie dentaire toute sa vie durant.

Le Dr Ken Knox, professeur de biologie buccale à l'Université de Sydney, et le Dr Tony Wicken, professeur de microbiologie à l'Université de New South Wales, ont reçu des bourses d'une valeur de $A800,000.00 du National Institute of Dental Research des Etats-Unis et du National Health and Medical Research Council de l'Australie.

"Notre grand rêve est d'enrayer complètement la carie dentaire," a dit le professeur Wicken. "Ce rêve est possible en théorie, mais il faudra plusieurs années avant de le réaliser."

Le professeur Knox, qui est également directeur de l'Institute of Dental Research, à Sydney, a affirmé pour sa part: "Nous ne devons pas croire que toute maladie, y compris la carie dentaire, ne peut être évitée.

Les professeurs Knox et Wicken font des recherches sur les bactéries buccales provenant des aliments et produisant des acides qui attaquent les dents et causent la carie. C'est en 1968 qu'ils ont entrepris leurs travaux dans les laboratoires du Dental Institute et de l'Université de New South Wales, et, dès 1969, ils ont déceler la présence de l'acide lipotéichoïque dans plusieurs de ces bactéries.

"Nous avons commencé à parler de la possibilité de mettre au point un tel vaccin à une assemblée tenue à New York, en 1975," a déclaré le professeur Knox, "et, depuis, l'idée a pris de l'ampleur."

Quant au professeur Wicken, il a dit qu'on ne pouvait prévoir quand le vaccin serait prêt, mais qu'il faudrait attendre de sept à dix ans avant d'entreprendre des expériences sur les humains. "La solution ne viendra pas des laboratoires," a-t-il ajouté. "Elle sera fournie quand on aura combiné les résultats des recherches fondamentales menées sur les différentes bactéries."

Selon le professeur Knox, un des problèmes à résoudre est de s'assurer que les composants du vaccin ne soient pas toxiques. Il en fut ainsi pour le vaccin que les États-Unis prescrivirent contre la grippe porcine et auquel une personne sur deux cent mille a réagi de façon anormale.

"Il ne s'agit pas tellement de déterminer si le vaccin est réalisable théoriquement, mais de savoir dans quelle mesure les réactions contraires qu'il peut causer dépasse ses avantages. En fin de compte, la décision n'est pas toujours entièrement scientifique."

Des cinquantes bactéries qui vivent dans la bouche, les professeurs Knox et Wicken en étudient douze qui entraînent inévitablement la carie dentaire. Ils poursuivent leurs recherches sur ces bactéries et sur les acides qu'elles produisent, dans des conditions qui ressemblent le plus possible à celles de la bouche.

Les protecteurs buccaux - oui

Un nouveau règlement, établi par la Fédération ontarienne des Associations athlétiques collégiales (the Ontario Federation of School Athletic Associations), oblige tout joueur de football à "porter convenablement son protecteur buccal."

L'ancien règlement exigeait le port du protecteur buccal. Cependant, lorsqu'un étudiant s'est présenté au jeu la saison dernière avec son protecteur buccal attaché au cou par une ficelle, il a fallu rendre le règlement plus spécifique en ajoutant que le protecteur devait être "porté convenablement."

On a également imposé des restrictions quant au choix des chaussures que les joueurs de football peuvent porter lorsqu'ils jouent sur un terrain gazonné. Les chaussures à semelles garnies de sept clous et à pointes métalliques sont interdites. Les joueurs doivent maintenant porter des chaussures dont les semelles sont garnies d'au moins douze clous. Le bout des clous doit avoir un diamètre minimal de trois seizièmes de pouce et les clous, une longueur maximale d'un demi pouce.

Les joueurs qui porteront des chaussures à pointes seront retirés du jeu, mais aucune punition ne sera infligée aux équipes. Cette saison, tout joueur qui ne portera pas convenablement son protecteur buccal, ne sera pas admis sur le terrain de jeu, déclarent la OFSAA.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 septembre 1979.

Fonds d'actions ordinaires	$45.358
Fonds à revenu fixe	$22.361
Fonds garanti	$16.333
Fonds de placement équilibré	$12.096

L'avoir total (valeur marchande) du régime s'élevait à $34,436,506.

Au 31 août 1979, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$45.495
Fonds à revenu fixe	$22.517
Fonds garanti	$16.203
Fonds de placement équilibré	$12.269

L'avoir total (valeur marchande) du régime s'élevait à $34,667,241.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, P.O. Box 7500, Station A, Toronto, Ontario M5K 1A0.

Forensic Odontology

Co-ed murderer, Theodore Bundy was convicted in a Florida court partly because of the identification of bitemarks left on his victims.

Boys killed by John Wayne Gacy and buried in his yard were identified through dental records.

Jonestown residents who drank the fatal juice mix were named because of individual dental characteristics.

Identification through forensic science — it's the art of giving a corpse a name, real-life detective work that would put even Quincy to shame.

Using x rays, matching tissue, comparing bones, studying teeth, forensic scientists, including dentists, solve the mysteries of the world of accident and crime.

Dr. John Hillsdon Smith, director of Forensic Pathology for the Ministry of the Solicitor General with the Ontario Government, is involved with over 120 homicide and identification cases every year. His staff includes an executive officer, x ray technicians, two photographers, one medical technician, three mortuary assistants and two clerical staff.

Dr. Hillsdon Smith outlined two general situations that occur in identification. In the first case, the police cannot positively identify the body but they do have an idea of whom it could be because of circumstances relating to the death. In the second case, they have no clue whatsoever as to the identification.

Working with the police, either an identification officer or the investigating officer, Dr. Hillsdon Smith will check fingerprints if the victim's identity is suspected. If there is nothing in police records that makes a conclusive identification possible, the next step is an x ray comparison of dental characteristics.

The investigating officer contacts dentists describing the oral status of the victim and asks for x rays on file that might possibly compare to those taken of the corpse.

If all this fails, said Dr. Hillsdon Smith, other x rays are taken of the body for comparison with ante mortem radiographs of identifiable areas such as the frontal sinus. Fine boney structure of the two sets of x rays is compared.

Lastly, when there is a series of possibilities of identities, skull x rays of the corpse are superimposed on a photograph of a suspect and compared. Positive identifications can be made with any or all of these methods.

When neither the investigating officer nor the forensic scientist has any idea as to the identity of a body, the corpse is examined to establish basic characteristics such as sex, height, weight, build and age. Abnormalities are noted. If one leg is shorter than the other, for example, it could have some bearing on the identification process. Dental characteristics are recorded as are scars and tattoos.

This information is fed into a police computer based in Ottawa and administered by the Royal Canadian Mounted Police. Called the Canadian Police Information Centre (CPIC), this system has the capability of pulling names of possible suspects from its memory according to characteristics entered.

The newest addition to CPIC is a dental file. According to Sergeant Chamberlain of Ottawa, the dental file has been on stream for about a year.

The CPIC dental file is programmed to work two ways. If, for example, a person is reported missing and there is reason to believe he is dead, police will go to his dentist for dental information. Items like missing teeth, root canals, gold fillings and abnormalities are noted. This information is fed into CPIC and linked up with missing persons records. Then when a person is located, identity can be ascertained through the dental report.

Working in the other direction, when unidentifiable bodies are found autopsy information and a dental chart is fed into the computer so that sometime later, when a missing person is reported, dental records might be matched.

The dental form used by CPIC was developed through that branch of the RCMP. It is a numerical form distributed by the police community. One part is completed by the police and the other part is completed by the dentist. At this time, the chart only applies to adult teeth.

FORENSIC FACTS

— Forensic Odontology was first taught as an undergraduate subject at McGill University in 1968.

— The only North American board that certifies dentists in forensic science is the American Board of Forensic Odontology.

— All ten faculties of dentistry in Canada now offer undergraduate courses in forensic dentistry.

— The first official forensic laboratory in North America was established under the direction of Dr. Wilfred Derôme in 1914. It's the Institut de Médecine Légale et de Police Scientifique in Montreal.

— Other crime detection laboratories in Canada include the Centre of Forensic Sciences in Toronto and RCMP labs in Vancouver, Edmonton, Regina, Winnipeg, Ottawa and Sackville.

Child abuse and the dentist

Dr. Paul Stimson, professor of Pathology, Health Science Centre, Houston, Texas, gave delegates to the Annual Meeting of the Forensic Science Association practical information on child abuse and neglect.

"It is not cognizant on the dentist to make a final assessment of child abuse," said Dr. Stimson in his opening remarks. "A dentist should comment only on whether or not the damage to the oral-facial cavity is consistent with what occurs in child abuse cases."

It's up to the dentist to suggest child abuse and then other agencies should take over. Dr. Stimson outlined the salient points of child abuse legislation in the United States and suggested ways to pick out an abusing parent and an abused child.

"There are not necessarily more cases of child abuse now than there were before," said Dr. Stimson, "but we are certainly becoming more aware.

"Dentists have a responsibility not only to the child who survives assaults, but also to those who end up as homicide victims."

Suspect an abusing parent, said Dr. Paul Stimson, when the adult:

- shows loss of control or fear of losing control
- presents a contradictory history
- projects the cause of injury onto a third party
- delays in bringing the child in for examination
- shows detachment
- reveals inappropriate awareness of seriousness of situation (either over or under reacts)
- continues to complain about problems unrelated to child's injury
- personally misuses drugs
- presents history that doesn't explain injury
- gives specific 'eye witness' account of the abuse
- gives history of repeated injury
- has no one to turn to when 'up tight' with child
- is reluctant to give information
- refuses consent for further diagnostic studies
- appears to shop for hospital or dentist
- cannot be located
- is psychotic or psychopathic
- was reared in a 'motherless' atmosphere
- has unrealistic expectations of the child

Suspect child abuse, said Dr. Paul Stimson, when the child:

- has an unexplained injury
- shows signs of malnutrition or dehydration
- has been given inappropriate drugs or food
- is in overall poor care
- is fearful
- shows evidence of repeated injury
- takes over and begins care of parents
- is seen as 'different' or 'bad' by parents
- is in fact different in physical appearance or emotional make-up because of mistreatment
- dresses inappropriately (in an attempt to cover wounds or scars)
- has injuries left out of a parent's account of history
- has injuries that could not have occurred in circumstances outlined in parent's history

Malpractice suits

"The best way to avoid malpractice suits is to practise malpractice prophylaxis," said Dr. Miles Standish of the Indiana University School of Dentistry at last month's meeting of the Canadian Society of Forensic Science. The meeting was held in Montreal.

Dr. Standish said that in the United States 75 per cent of malpractice actions result from a failure to diagnose — either a wrong diagnosis is made or an evident diagnosis goes undetected. Errors in treatment result in 22 per cent of malpractice suits. He specifically recalled three cases in California, Iowa and Illinois where dentists were found guilty of malpractice for failure to diagnosis oral cancer.

In looking at malpractice as a result of 'failure to diagnose and other acts of omission, Dr. Standish outlined acts of omission, such as failure to biopsy — "the more you biopsy, the more likely you are to detect cancer;" failure to obtain an adequate history of the patient — "use a written questionnaire and follow-up positive responses;" failure to keep good dental records and x rays — "complete records in ink, keep them updated and retain them indefinitely . . . there's always an exception to any statute of limitations;" failure to establish a good rapport with patients — "communication is the key;" failure to inform — "patients have the final right to say what is done to their bodies."

Dr. Standish advised that in getting an informed consent, a patient should be told the existing condition, the proposed treatment plan, alternative treatments, foreseeable risks and the chances of success or failure. In situations of randomized clinical trials, said Dr. Standish, patients must be told they are in an experimental rather than control group.

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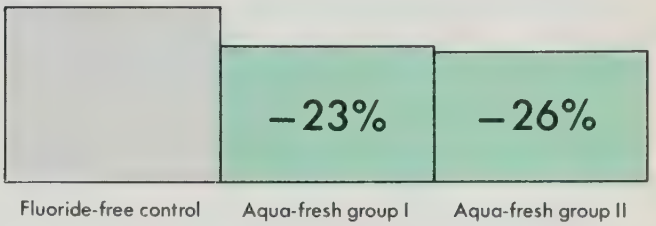

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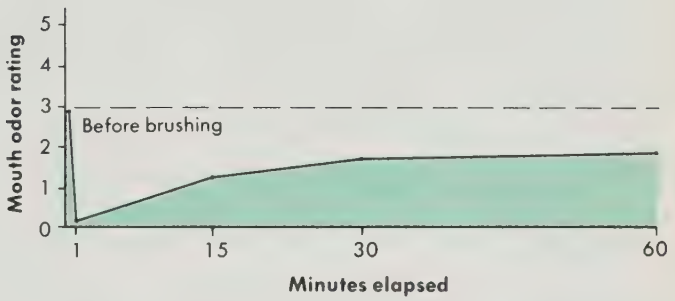

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Assemblée annuelle des sciences légales

Lors de l'assemblée annuelle de l'Association des sciences légales le Dr Paul Stimson, professeur de pathologie au Health Science Centre de l'Université du Texas, à Houston, a donné aux délégués des renseignements pratiques au sujet des enfants victimes d'abus ou de négligences.

"Il n'appartient pas au dentiste de porter un jugement définitif sur les abus qu'aurait subis un enfant," a déclaré le Dr Stimson au début de son exposé. "Un dentiste doit seulement déclarer si, oui ou non, les lésions orales et faciales peuvent résulter d'abus qu'on aurait pu infliger à un enfant."

Selon le Dr Paul Stimson, on doit soupçonner qu'un enfant est victime d'abus quand:

— on ne s'explique pas les blessures qu'il a;
— il montre des signes de malnutrition ou de déshydratation;
— on lui a fait prendre des aliments ou des médicaments qui ne lui conviennent pas;
— il manque de soins;
— il est craintif;
— il porte les marques de plusieurs blessures;
— il se montre inquiet avec ses parents;
— ses parents jugent qu'il est "méchant" ou "différent";
— son apparence physique paraît différente et que son comportement affectif est étrange à cause de mauvais traitements subis;
— il s'habille de façon bizarre (de manière à couvrir une cicatrice ou une blessure);
— il a des blessures dont les parents évitent de parler ou pour lesquelles ils fournissent de mauvaises explications.

En d'autres mots, le dentiste peut seulement suggérer qu'il y a eu abus. C'est à d'autres à pousser l'enquête ensuite. Le Dr Stimson a relevé les points saillants de la loi américaine en matière d'abus infligés aux enfants. De plus, il a indiqué des façons pour reconnaître et les parents qui maltraitent leurs enfants, et les enfants qui sont maltraités.

Et, de dire le Dr Stimson, on doit soupçonner un parent de maltraiter son enfant quand:

— il n'arrive pas à se maîtriser ou craint de ne pas pouvoir se maîtriser;
— il se contredit dans ses propos;
— il accuse une tierce personne d'avoir maltraité son enfant;
— il tarde à conduire son enfant chez le médecin pour le faire examiner;
— il néglige son enfant;
— il réagit anormalement ou qu'il exagère la gravité de certains cas;
— il continue à se plaindre de problèmes qui n'ont rien à voir avec l'enfant;
— lui-même prend à tort certains médicaments;
— il ne parvient pas à expliquer comment une blessure a été causée;
— il affirme qu'il a été témoin de l'abus;
— il rapporte plusieurs circonstances où il y a eu blessure;
— il ne sait pas où s'adresser quand il ne comprend pas son enfant;
— il hésite à donner certains renseignements;
— il refuse qu'on poursuive les examens;
— il semble chercher un hôpital ou un dentiste particulier;
— il ne peut être retracé;
— il souffre de névrose ou de psychopathie;
— il a été privé de sa mère pendant sa jeunesse;
— il attend l'impossible de son enfant.

"Les cas d'abus ne sont pas nécessairement plus nombreux maintenant que jadis," a dit le Dr Stimson, "seulement nous en prenons conscience davantage."

"Les dentistes ont des responsabilités non seulement vis-à-vis de l'enfant qui survit aux mauvais traitements qu'il reçoit, mais aussi vis-à-vis de celui qui finit par être victime de meurtre."

Erreurs de diagnostic

"La meilleure façon d'éviter les poursuites judiciaires pour faute professionnelle, c'est de recourir à la prohylaxie des fautes professionnelles." Ainsi s'exprimait le Dr Miles Standish, professeur de l'École dentaire de l'Université de l'Indiana, lors de la réunion annuelle de la Société canadienne des sciences judiciaires qui se tenait à Montréal le mois dernier.

Aux États-Unis, a-t-il déclaré, 75 pour cent des poursuites intentées contre les dentistes sont dues à des erreurs de diagnostic: ou bien le diagnostic est faux, ou bien une maladie évidente n'a pas été diagnostiquée. 22 pour cent des poursuites sont imputables aux erreurs de traitement. Le Dr Standish a cité trois cas qui se sont présentés dans les États de la Californie, de l'Iowa et de l'Illinois, et où les dentistes furent reconnus coupables de faute professionnelle parce qu'ils n'avaient pas su diagnostiquer un cancer de la bouche.

Les fautes professionnelles sont souvent le résultat d'une erreur de diagnostic ou d'une omission quelconque. Pour toutes celles qu'il a relevées, le Dr Standish a suggéré un moyen de les éviter. Ainsi, aux dentistes qui négligent de faire des biopsies, il a fait observer que "plus

on prélève des tissus, plus on est susceptible de déceler un cancer;" à ceux qui ne se soucient pas d'obtenir de leurs patients les renseignements appropriés pour bien les soigner, il a recommandé "d'utiliser un questionnaire écrit et d'exiger des patients des réponses claires à toutes les questions;" à ceux qui remplissent mal leurs dossiers et qui ne rangent pas convenablement les radiographies, il a conseillé "de remplir les dossiers à l'encre, de les maintenir à jour et de les conserver indéfiniment . . . il se présente toujours une exception aux délais fixés;" à ceux qui ne savent pas établir de bons rapports avec les patients, il a fait remarquer que "la communication est la solution de ce problème;" et à ceux qui ne renseignent pas leurs clients, il a rappelé que, "légalement, ce sont les patients qui, en définitive, décident de ce qu'on doit leur faire."

Avant d'obtenir une autorisation du client, a poursuivi le Dr Standish, il convient de le renseigner sur les conditions qui prévalent, sur le traitement suggéré, sur les autres traitements possibles, sur les dangers encourus ainsi que sur les chances de succès et les risques d'échec. Et lorsqu'il s'agit d'un traitement nouveau qu'on met à l'essai, a-t-il ajouté, il importe d'en informer le client et de lui dire clairement qu'il est un sujet expérimental et non un sujet témoin.

Sciences légales au Canada

La cour de la Floride a reconnu Theodore Bundy coupable de l'assassinat d'une jeune étudiante. Il avait laissé des empreintes dentaires sur sa victime et c'est en les relevant qu'on a pu le convaincre de son crime.

John Wayne Gacy avait tué des garçons et les avait enterrés dans la cour de sa demeure. Ceux-ci ont pu être identifiés grâce à leurs dossiers dentaires.

Des résidents de Jamestown avaient bu un mélange de jus qui leur avait été fatal. Une fois de plus, ce fut grâce à leurs particularités dentaires qu'on est parvenu à les identifier.

Les sciences judiciaires ont pour but d'identifier les cadavres. Aussi les experts sont-ils de véritables détectives qui pratiquent leur art d'une manière à faire rougir Quincy lui-même.

Parmi eux se trouvent des dentistes. Tous ensemble, ils essaient de résoudre les mystères qui entourent les crimes et les accidents. Pour ce faire, ils prennent des radiographies, examinent la dentition des victimes, analysent leurs tissus et comparent leurs os.

Le Dr John Hilsdon Smith, directeur de la pathologie judiciaire pour le ministère du Solliciteur général de l'Ontario, a plus de 120 cas d'homicide à élucider chaque année. Son personnel compte un directeur exécutif, des radiologistes, deux photographes, un spécialiste médical, trois aides médico-légaux et deux commis de bureau.

Quand il s'agit d'identifier un cadavre, a déclaré le docteur, deux cas se présentent habituellement. Ou bien la police ne peut pas identifier la victime avec certitude, mais elle a une idée de son identité à cause des circonstances qui entourent sa mort, ou bien elle ne possède pas le moindre indice.

Le Dr Hillsdon Smith travaille en collaboration avec un membre de la police, que ce soit un officier chargé d'identifier les corps ou tout simplement un enquêteur. Lorsqu'on se doute de l'identité de la victime, on vérifie ses empreintes digitales. Si rien dans les dossiers judiciaires ne permet de faire une identification décisive, on procède à des radiographies dentaires afin de les comparer à celles que les dentistes accumulent dans leurs dossiers et voir si la victime n'aurait pas été un de leurs patients.

Si ces méthodes échouent, a continué le Dr Hillsdon Smith, on a recours à une autre. Cette fois, on prend des radiographies de certaines parties du corps qui, tel le sinus frontal, peuvent être identifiées. Ces radiographies sont, elles aussi, comparées à d'autres radiographies *ante mortem* dans l'espoir de découvrir l'identité de la victime.

Enfin, il arrive que plusieurs identités soient possibles. Ce sont alors les radiographies du crâne qui servent à reconnaître le véritable suspect. Pour en arriver à identifier un cadavre de façon sûre, on emploie soit l'une ou l'autre de ces méthodes, soit toutes les trois.

Lorsque ni l'enquêteur ni le spécialiste judiciaire ne parviennent à établir l'identité d'un mort, le corps est examiné afin de déterminer ses principales caractéristiques tels le sexe, la taille, le poids, l'âge et la constitution. Les particularités sont notées avec soin. Par exemple, si une jambe est plus courte que l'autre, ce détail peut avoir quelque importance pour reconnaître la victime. On relève tout, les particularités dentaires aussi bien que les tatouages et les cicatrices.

La police confie ces données à un ordinateur qui se trouve à Ottawa et qui appartient à la Gendarmerie Royale du Canada. Il s'agit du Centre d'information de la police canadienne (CIPC) et, selon les données qui lui sont confiées, cet ordinateur peut puiser dans sa mémoire les noms des suspects possibles.

Dernièrement, le CIPC a été doté d'un fichier dentaire qui est en usage depuis un an, a déclaré le sergent Chamberlain, d'Ottawa. Ce fichier est programmé pour un travail de deux jours. Ainsi, lorsqu'une personne est portée disparue et qu'on a une raison de croire qu'elle est morte, la police examinera son dossier dentaire pour y noter les dents qui manquent, celles qui ont été réparées ainsi que les cavités alvéolaires. L'ordinateur compare ensuite ces

voir à la page 607

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An examination of dental implants provides a useful research model to study the periodontium. In addition to tooth support, the periodontium functions as an important source of sensory input for the masticatory apparatus. As the implant has no periodontal support i.e., ideally there should be "union" between implant and the surrounding jaw, further research is required to ascertain the effects on masticatory activity. Furthermore, there may be a need to incorporate a device to dissipate occlusal stress on the implant.

Periodontal Support for dental implants

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Despite advances in preventive dentistry, the problems concomitant with the successful replacement of tooth loss have plagued mankind for centuries. To warrant general acceptance as being successful, artificial tooth replacement should exhibit (a) stable physiological retention, (b) non-toxicity, (c) durability in oral environment, (d) non-carcinogenicity and (e) esthetic satisfaction. There are a number of cases where these criteria cannot be satisfied by "traditional" prosthodontic therapy, either due to lack of alveolar prosthodontic support or the patient's intolerance of mucosal-borne prosthodontic devices. Provided there is careful patient screening, artificial dental implants may rectify some of these deficiencies.

There are presently a host of designs of dental implants and techniques for their insertion which either stabilize mucosal-borne dentures or serve as abutments for fixed prosthodontic devices. Unfortunately, evaluation of implants has tended to rely upon clinical rather than controlled scientific assessment and so has generated controversy. Although some of the data are subjective, high

The configuration of the alveolar bone reflects functional stress.

clinical success rates are claimed for some dental implants,[1,3] albeit over a limited duration. Dental implants, however, cannot be expected to function in precisely the same manner as the structures and tissue they replace (a similar criticism may be levelled at removable prosthodontic therapy). Nevertheless, implants generally enjoy success in medicine, e.g. hip prostheses or plates aiding bone fracture stability, despite being subject to considerable stress, although they are normally within an enclosed environment.[4] By contrast, dental implants are exposed to the oral environment, which comprises both occlusal stress and microbial flora. This leads to particular difficulties in their design, insertion and retention.

Despite the importance of mucosal adaptation to the superficial portion of a dental implant, the dissipation of stress on the dental implant is the subject of special concern. The prosthodontic device, e.g., crown or prosthesis, attached to the implant, must be carefully designed to minimize functional stress. Implant support mechanisms, however, will not allow adaptive adjustments that occur in the "normal periodontium" to different functional states. Consequently, mal-placement of an implant will lead to failure, as will excessive occlusal stress.

The "normal" periodontal tooth support must be reviewed, therefore, in order to appreciate and understand the problems associated with implant support. A natural tooth may remain functional when ankylosed to the alveolar socket, however — a feature which suggests the periodontium is not essential for tooth function.

PERIODONTIUM

The "normal" periodontium comprises cementum and alveolar bone (as calcified tissues) and the periodontal ligament and gingival lamina propria (as soft connective tissues). The cementum attaches the periodontal ligament to the tooth dentine whilst the alveolar bone attaches the periodontal ligament to the jaws.

The alveolar bone comprises a thin bony shell of compact bone surrounding the tooth socket and is connected by varying amounts of spongiosa to the external cortical plate. The configuration of the alveolar bone reflects functional stress. For instance, the alveolar bone is fused with the external cortical plate at the labial aspect of the incisor region, whereas there is considerable spongiosa separating these two bony plates in the molar region. In this latter region, the trabeculae are oriented to provide additional strength for tooth support.

The periodontal ligament and gingival lamina propria are continuous at the level of the alveolar crest. These two tissues undergo continuous renewal to replace the loss due to wear and tear, even in the undisturbed dentition.[5] The component fibres of the periodontal ligament are arranged in aggregates to support the tooth in the alveolar socket and resist compressive stresses. As collagen is deposited along lines of tension, the principal periodontal fibres are oriented at an angle approximately 50° to the tooth[6] to oppose axial loads. The crestal groups of fibres, by contrast, are oriented to resist horizontal, tangential or extrusive stress. Collagen fibre turnover in the periodontal ligament is high, which is indicative of the necessity to maintain the tooth in a homeostatic relationship to the surrounding soft tissue environment. Rather than being in the form of discrete principal fibres, the collagen fibres ramify from fibre to fibre and many of the fibrils are in part not oriented to form fibres. The arrangement of collagen in the periodontal ligament therefore suggests that it provides attachment for the tooth and participates in the cushioning of the loaded tooth.[7]

There must be a certain area of tooth root for the efficient functioning of the periodontium. The molars are primarily subjected to heavy masticatory stress, and have a greater area of periodontal support by virtue of their numerous roots compared with single conical roots of incisors. Generally, the main function of the periodontal ligament may be ascribed to the transmission of occlusal forces to the alveolar bone, and so to the jaws:[8] a feature that depends upon sufficient length of tooth attachment.

The biomechanics of periodontal function remain obscure, but depend on a variety of factors, including the magnitude, rate and duration of the force[9] previous loading history,[10] age and normal masticatory loads. The periodontal ligament is capable of adjusting to changes in the force pattern acting on a tooth over extended time periods until the re-establishment of a new equilibrium tooth location.[11]

In addition to collagen and oxytalan fibres, there are many cells in the periodontium, including fibroblasts, osteo-blasts and -clasts, and cemento-blasts and -clasts, along with most cells, leukocytes, lymphocytes, plasma cells, macrophages and immunoblasts. These cells are essential to the homeostasis of the periodontium, although there is scant information on the control of cell activity on whether the periodontal ligament cells contract as do connective tissue cells in a healing wound. In addition, there is the ground substance comprising two major classes of glycoproteins. The biomechanical

The complex endings are assumed to be mechano-receptors, although some of the free-fibre endings may also be mechano-sensitive.

mechanical role of these substances, however, has yet to be established.

The periodontium also has a rich complex vascular supply[12] which may be concerned with hydraulic dampening of tooth movements within the alveolus.[13]

PERIODONTAL MECHANO-RECEPTORS

As exemplified by its rich sensory innervation, especially to tooth displacement,[14] the periodontium is a complex biological entity.

Terminal nerve endings have been observed in both the gingival[15] and periodontal tissues.[16] Complex unencapsulated, complex capsulated and free endings have been described in the gingival tissues, periodontium and periosteum. The complex endings are assumed to be mechanoreceptors, although some of the free-fibre endings may also be mechano-sensitive.

Kraus-like and Meisner-like capsulated endings are found in the gingival papillary and subpapillary lamina propria along with compact and loose unencapsulated whorls.[15] There is considerable variability in the papillary lamina propria, and fibrillar extensions may leave the whorls and pass into or through the epithelium to reach the outer cell layers. Free gingival fibres often seem to form loops and give off intra-epithelial fibrils which end in knob-like swellings.

Nerve terminals in the periodontal ligament, which are presumably mechanosensitive, are essentially analogous in structure to those described in gingival tissues. Two types of periodontal encapsulated mechanoreceptors have been described:[16]

(a) Discrete units each comprising an encapsulated myelin fibre which pursues a tightly coiled or spiral course, loses its myelin sheath and divides into many smaller unmyelinated terminals. This end organ is only loosely encapsulated and is surrounded by loose connective tissue.

(b) More complex endings, each comprising three or more nerve fibres, which lose their myelin sheaths and encircle one another with their terminal branches.

Although the alveolar periosteum contains some complex unencapsulated and free nerve endings which may be mechanosensitive, the majority appear to be of the Golgi-Mazzoni type.[17] Most of these comprise a corpuscle and a terminal and occur singly or in clusters in the inner and outer periosteal layers.

There appear to be two basic functional types of receptor in the periodontium, both of which respond to tooth movement following the application of an external force. One of these is rapidly adapting and generates a transient discharge to a sustained stimulus: the other is slowly adapting and continues to generate more impulses for longer periods. The slowly adapting receptors are probably located within the ligament itself, although many of the rapidly-adapting responses previously attributed to periodontal receptors may possibly have originated from the alveolar periosteum and so depend merely on an intact periosteum.[18]

Single peripheral periodontal neurons show a maximal response to tooth movement in one direction — a feature that decreases as the direction of stimulation moves on either side of this direction.[19] Receptors, or receptor systems of single neurons, however, frequently respond to stimulation of a given tooth in more than one direction.[20] Receptor fields of single first order periodontal neurons may therefore extend beyond individual teeth to involve several teeth,[18] i.e., isolated tooth loss may not severely compromise the mechanoreception of the dentition.

Slowly-adapting receptors are capable of signalling small changes in the force applied to teeth.[18] Nevertheless, the complex organization of receptor fields and the variable fields and the variable directions of sensitivity of a group of periodontal mechanoreceptors may result in conflicting inputs to the central nervous system at low intensities of stimulation. Consequently, there may be a reduction of the overall information transmitting capacity of the mechanoreceptor system. This accounts for the optimal functioning discriminatory range for human central incisors of 50-500 g, despite incisor thresholds being of the order of 1 g or less.[21] Indeed, discrimination of applied forces is about the same whether they are applied along the long axis of the tooth or 90° to the long axis. The ability to discriminate differences in force intensity is essentially the same in all teeth.[21]

The cell bodies of first order peripheral periodontal neurons are located in the Gasserian ganglion and the mesencephalic nucleus of the trigeminal nerve. The neurons, which have their cell bodies in the Gasserian ganglion, project to the main sensory and spinal nucleus of the trigeminal, where information is relayed segmentally to influence trigeminal motor-neurons reflex.[18] As a result, both inhibitory and excitatory reflex effects can be seen in the jaw-closing musculature. Neural activity originating

from periodontal mechanoreceptors may also be relayed via the main sensory and spinal nucleus of the trigeminal, via the thalamic nuclei to the cerebral cortex. Periodontal neurons, which have their cell bodies located in the mesencephalic nucleus of the trigeminal, are also involved with reflex activity in the masticatory muscles. There are also projections from the mesencephalic to the motor nucleus, many of which may be concerned with relaying afferent information from muscle spindles. Furthermore there are ill-defined periodontal neuronal projections to the cerebellar cortex. Thus there are complex neural connections and associations from the periodontal mechanoreceptors. Periodontal sensation may also exert a positive feedback effect upon jaw-closing motorneurons at the cortical level in addition to its influence in the brain stem.[22] Without a periodontium, however, many of these receptor mechanisms are absent.

STRESS ON TEETH

Generally the largest stress on the teeth occurs during mastication. Each occlusal thrust is of short duration, and confined mainly to the limited periods of meal times. Antagonistic contact in maximum intercuspation occurs in nearly every chewing cycle after the bolus has been chewed through.[23] Indeed the functional range of occlusal contacts comprise frequent contacts in maximum intercuspation and lateral gliding, both in the final closing and in the initial opening phase of the masticatory stroke. Although the amount of glide varies individually and from stroke to stroke, it depends on the type of occlusion[24] and the degree of abrasion and type of food. The teeth are generally not in occlusion, except during mastication and deglutition.[25] For the remainder of the time, stress on a tooth is essentially horizontal in direction, with the tongue force exceeding that of the circumoral musculature of the lips and cheeks.

During mastication, the bite force is transmitted through the bolus to the opposing teeth, whether or not the teeth make contact.[26] The direction of force is principally perpendicular to the occlusal plane in normal function, although there is a horizontal component tending to tilt the teeth mesially, buccally or lingually due to the angulation of most teeth.[27] The maxillary incisors tend to be displaced labially with each masticatory cycle.[28]

The periodontal fibres are loaded in tension and extend deep into the bone, often extending to the periosteum of the lingual or buccal surface. Where two teeth adjoin, the fibres may continue all the way across from one tooth to the next. As a result, occlusal stress on the tooth is translated to alveolar compression, i.e., occlusal stress on a tooth leads to vertical and circumferential compression of the entire socket. When there is no periodontium, therefore, occlusal stress is translated directly to the jaw.

The alveolar walls (lamina dura) comprise dense cortical bone, well adapted to carry functional loads. As the inner wall of the alveolus is compressed in function, apposition occurs, as in the case of a newly erupted tooth with a thick periodontium. Subsequently, the thickness of the periodontium decreases to maintain the space necessary to accommodate its various functional components and the functional movements of the tooth within the socket.

The principal fibres of the periodontal ligament are aligned about 50 degrees to the tooth surface: the most efficient angulation for total load-bearing capacity. A more horizontal orientation provides space for more fibres, but at such angulation the actual stress on the fibres increases more than their numbers. By contrast, a more vertical angle is more efficient in terms of loading, but the loading is not reduced as much as the number of fibres that can be fitted into the space.

The internal architecture of the alveolar process is similarly organized to transmit loads of function to the underlying bone through compression with the minimum of bending. When space between adjoining teeth is sufficient, the medullary bone develops a multiple arch and buttress pattern, extending from one tooth to the next. At the alveolar crest, the cortical plate of the alveolus joins directly with the outer cortex of the alveolar process. The absence of "normal" alveolar support for a dental implant may therefore lead to stress concentrations in the jaw.

The periodontium will respond to changes in stress on a tooth, whether intermittent or continuous, provided the direction is constant. If stress is directed horizontally to the tooth, then there will be fibre tension accompanied by bone deposition on one aspect of the tooth and fibre relaxation and bone resorption on the other. Indeed the stimulus of compressive loading is essential for the maintenance of healthy alveolar bone, as illustrated by alveolar bone resorption following tooth loss. There is, however, scant data on how the bone will withstand stress on a dental implant following alveolar resorption after tooth loss.

TOOTH CONTACT

Teeth make contact during chewing, with a frequency increasing towards the end of the cycle; contact may occur with nearly every chewing stroke with some foods.[29] Although some individuals indulge in a chopping jaw action with little lateral movement, the chewing cycle is not static in most people. During contact, the lower jaw moves along a pathway determined by the shape of the tooth cusps.[30] Thus the occlusal contour of any prosthodontic device on a dental implant is critical to its prognosis. In this occlusal phase of the chewing cycle, the teeth spend a short time in the maximum intercuspal contact position, and the force exerted by the elevator muscles is distributed over a greater tooth surface area than at any other stage in the chewing cycle. Throughout the period of tooth con-

In the case of an implant . . . the absence of periodontium may inhibit any changes in location to be accommodated.

tact, the elevator muscles contract isometrically or very nearly so. Although the periodontium cushions the shock of tooth contact, the maximum cushioning effect is probably no more than about 0.05 mm.[31] Nevertheless, this cushioning effect may be critical to the prognosis of a dental implant, although data are obscure in this regard.

Tooth movement towards contact and the achievement of contact are probably unlikely to be associated with dramatic changes in the discharge of the periodontal receptors, except to bring in high threshold receptors at the moment of contact. As soon as lateral and forward gliding in contact begins, however, there will be firing of receptors sensitive to horizontal movement. The dramatic change in periodontal input is derived from those teeth which are not load-bearing during the initial stages of the movement, but which make contact in its terminal phase. Nevertheless, tooth contact is not signalled solely by a change in periodontal mechanoreceptor discharge[32] as joint receptors and muscle spindles are also involved. Also the compensatory role of these sensory receptors in muscles and temporomandibular joints in the absence of periodontal input is obscure.

TOOTH LOADS

There have been many studies of (voluntary) intra-oral force measurement.[33,35] Maximum load values of 53.5 — 64.4 kg have been recorded for male students and 35.8 — 44.9 kg for female students,[36] whereas the maximum biting forces on the first molar teeth have been reported as 41.3 — 89.98 kg and 13.2 — 23.1 kg on the central incisors.[33] On subjects with complete dentures, mean molar forces of 12.3 kg and incisor forces of 8.2 kg have been reported.[37] An average biting force of 21.2 kg between natural teeth and 7.4 kg on free-end saddle dentures have been reported.[38] Masticatory loads ranging from 7.2 — 14.9 kg have been recorded for three different foods [39] with masticatory loads being similar on both working and balancing sides of the occlusion.[26] It is possible that individuals have an innate biting force range which is affected by many factors, including sex, occlusion, tooth restorations, pain threshold and muscular development of the individual. No correlations have been reported however between bite force and stature or body weight, or in the voluntary bite force between bruxists and non-bruxists.[40] The mean chewing frequency and mean maximum pressure appear to be independent of the food eaten and are characteristic of the patient.[41] The greatest amount of time is spent during chewing at lower pressure with higher pressures being used for only short periods. Nevertheless, accurate prediction of occlusal forces on a tooth or dental implant is controversial.

The speed of mandibular movement during the masticatory cycle influences tooth loading. Generally the mandible decelerates immediately prior to tooth contact.[42] The speed of mandibular movement is not only subject to individual variation[43] but also with the type of food. Slightly different rates of chewing have been reported in different jaw relationships[44] although there is considerable inter- and intra-subject variation.[45] The chewing rates with the natural dentitions and complete artificial dentitions exhibit a similar range: 49-120 cycles/minute for the natural dentition and 33-123 cycles/minutes for the complete artificial dentition.[46]

Abnormal force may be applied to a tooth as a result of a prosthetic appliance,[47] a new filling or crown[48] or a parafunctional habit.[49] The characteristics of such forces remain obscure, but may well exceed the range of force usually acting upon a tooth. Furthermore, abrupt changes in the normal force on a tooth or adjacent teeth may occur by fitting a new prosthesis in the opposing arch or by other prosthodontic procedures. Thus great care is required in all prosthodontic therapy.

The location and orientation of a tooth in the arch depends upon the balance of all the forces acting over an extended period. Sustained alterations in force, magnitude or duration may lead to changes in tooth position, mediated by the structural elements of the periodontium. As a result, the tooth will normally assume a new equilibrium position within the dental arch. The rate of tooth migration into the homeostatic position depends upon periodontal fiber orientation, bone density and age.[50] If the change in occlusal forces is too severe or abrupt, pathological changes including necrosis and inflammation occur within the periodontium. In the case of an implant, however, the absence of periodontium may inhibit any changes in location to be accommodated.

Many studies have examined the periodontal reaction to unilateral forces directed towards individual teeth or groups of teeth.[51] In general, physiological forces produce areas of pressure or tension within the periodontal ligament resulting in transient inflammatory changes. On the pressure side, this is also resorption of bone and cementum, whereas on the tension side, apposition of bone and cementum occurs. The tooth becomes mobile and after a variable time period moves into a homeostatic location characterized by periodontal regeneration. Most occlusal stresses, however, operate in a "jiggling" manner with traumatic forces operating first on one side of the

tooth and then on the other depending upon the point of tooth rotation. As a consequence of continued trauma, there is gradual widening of the buccal and palatal periodontal ligament space, thrombosis and hemorrhage, destruction of collagen and resorption of bone and cementum.[52] The natural periodontium is therefore a vital sensitive tissue which supports the tooth in the alveolus.

The location of an implant surrounded by bone . . . may change in the absence of a periodontium.

As judged from orthopedic and orthodontic data, mechanical stimuli can initiate changes in bone structure and surface contour.[53] The exact mechanism for such remodelling phenomena remains obscure, although some type of biological transducer must be present to convert pressure into reaction. Bone remodelling is initiated and maintained by repeated piezoelectric currents caused when bones are deformed,[53] but this still does not explain how such an electrical stimulus affects cellular and extracellular elements to produce changes in osseous structure. Bassett concluded that the resulting structural change would then be able to resist the deforming mechanical force and stop the piezoelectric signals.[53] The phenomena may be explained by a series of "flexure-drift laws" whereby under repeated deformation, when a lamellar bone surface becomes more concave there is bone formation, and resorption when the bony surface becomes more convex.[54] More research is required before the effect of mechanical stimuli on bone form may be explained, although there is no appropriate reason why a "normal" periodontium is required for such an effect. It is possible therefore that the location of an implant surrounded entirely by bone, i.e. without an intervening periodontium, may change in the absence of a periodontium.

The presence of functioning natural teeth correspond with definite trabecular networks between the root surface and thickened cortical plates.[55] As shown by birefringent resin models, apically directed loads result in lateral as well as apical stress distribution to the area of the cortical plate.[56] The main alveolar stress concentrations are located inter-radicularly and interproximally and directed toward areas where reinforcement exists. The orientation of trabeculae around a dental implant may be similar, although definitive investigations have yet to be reported.

The periodontium probably serves to modify and distribute the high stress intensity generated within the individual teeth by acting as a "buffer" space or stress absorbing cushion. This leads to a more even distribution within the trabecular lattice extending finally into the cortex. The absence of a "normal periodontium" surrounding a dental implant leading to a lack of stress-absorbing cushion, however, may change the jaw stress trajectories.

Teeth may be supported by a multiphasic system comprising an elastic system provided by the collagen, a viscoelastic system provided by the ground substance, by tissue fluid and by blood pressure.[57] Following loading experiments on rat maxillary incisors, tooth support of a relatively heavy load appears to be accommodated by (a) the creation of cirsoid aneurysms resulting from the strangulation of vessels by displaced collagen fibres, (b) the interstitial fluid acting as a squeeze fibrin and (c) the diffusion of fluid through the walls of the vessels as they are subjected to increased pressure by the displaced root.[13] Following horizontal loading of monkey incisors, the fluid and/or cells of the compressed periodontal ligament appear to be displaced initially and this is gradually followed by the displacement of bone and movement of the tissue constituents of the ligament.[58] Thus all of the components of the periodontal ligament appear to be involved in tooth support. It is generally considered that collagen fibres in the periodontal ligament and in the gingiva adjacent to alveolar bone function to attach the tooth to adjacent structures and perhaps to restrain the flow of ground substance so that both act as a cushion between bone and tooth.

At rest, a tooth moves in its socket in response to the vascular pulse[59] and a pulse wave can be detected during rebound of a tooth deflected by a load of less than 15g.[10] There is ample evidence to show that under loads, the vessels on the compression side may be compressed wholly and as a consequence there may be cellular necrosis. However, details concerning the role of the vascular system of the periodontal ligament under loading have yet to be elucidated.

DENTAL IMPLANT SUPPORT

There is no "periodontal support" when a dental implant is inserted into a hole drilled in the alveolar bone although there may be localized inflammatory changes due to surgical trauma. In 1913, Jacquette[60] postulated that dental implants would fail without a shock absorbing periodontium. Endosseous dental screw implants appear to be surrounded by a variable amount of fibrous tissue,[61] as do some subperiosteal and dental implants.[62] Such fibrous capsules contain flattened cells and collagen fibres lying parallel to the implant surface with a relatively scant vascular network.[63] Occlusal stress on such implants, therefore, appears to be resisted principally by connective tissue compression. There also appears to be only scant innervation of such tissue mainly by occasional unencapsulated nerve endings. Generally such connective tissue capsules around dental implants are regarded as indicative of impending pathological change leading to exfoliation. Ideally dental implants should have no fibrous

When dental implants are inserted, a variable time must be allowed to elapse before they are subjected to stress.

tissue interface between the bone. Rather direct abutment between bone and implant is the objective.[64]

The support of the dental implant is therefore quite unlike that of the natural periodontium, although ultimately occlusal stress must be transmitted to the jaw.[65] There are dental implant materials which encourage osteogenesis and so facilitate osteogenic support of dental implants especially tricalcium phosphate ceramics.[66] These materials encourage mechanical "lock" between jaw and implant. Occasionally oral epithelial downgrowth into the implant-host interface may compromise implant support,[67] but this again is indicative of pathological change.

When dental implants are inserted, a variable time must be allowed to elapse before they are subjected to stress. This is to allow for the dissipation of inflammatory changes due to surgical trauma which may be further compromised by infection. In addition, time must elapse before bone fully envelopes an implant. There is no data on how long an implant should be in place before being subject to functional stresses, although there is no doubt that premature functional stress will initiate pathological changes.

Due to its periodontium, the natural tooth is normally in a location of equilibrium within the dental arch. With the absence of a periodontium, however, a dental implant cannot migrate to an equilibrium position. The insertion of dental implants must therefore be carefully scrutinized:

(a) to avoid undue pressure due to lips, cheeks or tongue;
(b) the occlusal stress on an individual implant must be reduced to a minimum as no physiological compensatory mechanism is possible;
(c) the degree of bony support for a dental implant requires investigation, since the proximity of the maxillary antrum, mylohyoid ridge etc. may compromise the location of implant insertion or the size of the implant;
(d) adequate oral mucosal thickness, hypertrophic mucosal ridges, muscle attachments, scar tissue following previous oral surgery may compromise the ideal implant location;
(e) any supra-gingival device, e.g. crown, bridge or denture, must be designed with great care to obviate any iatrogenic pathological changes.

The majority of patients requiring dental implants are middle aged or older with few or no natural teeth remaining in the arch. As a natural ageing process, such patients exhibit a gradual retardation of cell division, growth and tissue repair. There is often a tendency to cellular atrophy with increasing age so that even with a natural periodontium, precautions are required to avoid overloading denture abutments. Great precautions are therefore required to avoid overloading dental implants. The placement of dental implants therefore requires:

(a) investigation of the role of bony support on implant function;
(b) investigation of the role of "shock" absorbers built into the dental implant to facilitate the accommodation of occlusal stress on the implant.

CONCLUSIONS

The era of dental implants heralds an exciting, but complex, phase of research.[68] The need for scientific assessment to augment clinical evaluation of dental implants is all too apparent. The need for dental implants is unquestioned, but their general acceptance now depends upon both scientific and clinical experience.

In this review, the role of the oral flora and gingival adaptation to the implant have been ignored. This does not imply that such important facets can be ignored in implant evaluation. Certainly the absence of a "true periodontium" on implant success requires urgent study. If an implant is inserted into an arch where there are some natural teeth, then the "natural" periodontium of these teeth may yield sensory input relating to jaw posture along with information from the periosteum, muscles and temporomandibular joints. As a dental implant is ideally surrounded by bone, the absence of the cushioning effect of the periodontium during masticatory stress may be crucial. There may well be merit in incorporating some form of "shock absorber" into an implant, although hip prostheses, which are subject to great stress, appear to function adequately without such a device.

In the case of hip implants, the amount of bony support of the implant is carefully assessed. But although adequate bony support for a dental implant is an important prerequisite, there is no scientific data to form an objective patient evaluation prior to implant insertion. This is important since dental implants to support prosthodontic devices are generally required in the middle-aged or old patient where alveolar resorption may have compromised the available support.

There is no doubt that dental implants may play a role in prosthodontic therapy, but the absence of objective scientific criteria for their evaluation hinders their adoption at present. Yet the periodontium may occasionally be obliterated in "natural" teeth, e.g. ankylosis due to hypercementosis, often without associated clinical signs or symptoms. Endodontic pins may also be used to support a tooth where there is periodontal loss. The absence

There is no doubt dental implants may play a role in prosthodontic therapy, but lack of objective scientific criteria for their evaluation hinders their adoption . . .

of a natural periodontium may therefore cause few problems for isolated teeth.

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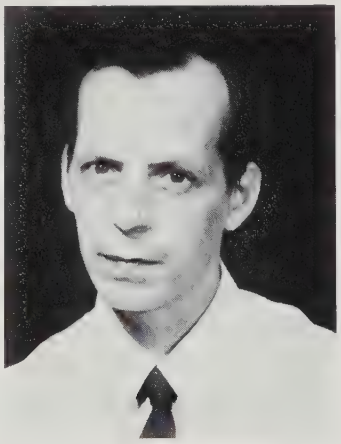

Dr. C.L.B. Lavelle

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This article discusses all aspects of electric pulp testing. Emphasis is placed on the problems encountered in obtaining accurate readings and it is stressed that the electric pulp tester should not be used as the only diagnostic test in determining pulp viability.

Electrical Pulp Testing

Joel Antel, DDS
W.J. Christie, DMD, MS, FRCD (C)
Winnipeg, Manitoba

The history of electrical stimulation of the dental pulp dates back to 1859, when it was described as a means of obtaining anaesthesia.[1] Today, the use of electric pulp stimulation for the evaluation of pulpal vitality is an important diagnostic aid; which in correlation with symptoms, radiographs, and other clinical findings is considered useful. Some doubt, however, must be cast on deriving tables of clinical interpretation for each reading on the scale. A low threshold reading was interpreted as a hyperemic pulp at one time. Studies by Mumford[2] and others have shown this to be erroneous. Factors such as the patient's stimulation threshold, the position of the tooth in the arch, age, and extent of restorations must all be considered as these will also affect the response to the electric pulp tester. The pulp tester should only be used to determine if there is a vital nerve capable of reacting to the electrical stimulus.

The maturity of the root apex must be evaluated before it can be decided if the pulp has been devitalized due to trauma.

SAFE USE OF ELECTRICAL STIMULATION

As with any clinical test it is important that the electric pulp tester be safe to administer. No test for vitality should cause pulpal change that may lead to eventual loss of pulpal vitality. McDaniel, et al[3] studied the effect of electrical stimulation on the pulp and found no pulpal changes in the teeth of experimental animals. This was true even after lengthy application of maximal stimulation.

RELIABILITY OF PULP TESTING UNITS

In the "Reports of Councils and Bureaus" on electric pulp testers, Millard[4] states that both battery powered and 110-volt line current powered testers display consistency and reliability in their voltage outputs. However, differences may occur in the dial setting between instruments of the same manufacturer. This difference may even occur between two pulp testing units both of the same model and made by the same manufacturer.

The current outflow at any particular setting may vary from instrument to instrument. There is no uniformity in the scale of units which are arbitrarily set by the manufacturer. For example, some of these scales may be from 1 to 4, zero to 10, zero to 14, or zero to 80.

REASONS FOR FALSE RESPONSES

It is also important to be sure we are actually measuring pulpal response to electrical stimulation and not the response of associated and/or neighbouring tissues. If the recorded response is due, for example, to an electrical short circuit to the periodontal ligament as a result of moisture, and not direct stimulation of the pulpal tissues, the results of the test are inaccurate and do not reflect the state of the pulp. This may lead to a false diagnosis.

Gerstein,[5] on the other hand, explains that no direct relationship exists between the periodontal ligament and enamel such as that which exists between the enamel rods, dentinal tubules, odontoblasts and pulpal tissue. He thus eliminates the periodontium as the possible source of reaction if the crowns of the teeth are adequately isolated.

Grossman[6] lists some of the disadvantages and possible sources of error involved in the use of the electric pulp tester. He states that a positive reading, which indicates vitality, can be falsely recorded if one is dealing with a pulp undergoing putrefaction. This false response is due to the moisture present in the pulp canal system during putrefaction which transmits the current to the vital apical tissues. He also states that improper responses will be recorded if the electrode is applied to a metallic restoration. When pulp testing on such a restoration, the current will be more readily conducted to the adjacent pulp or periodontal ligament than when the electrode is applied on enamel.

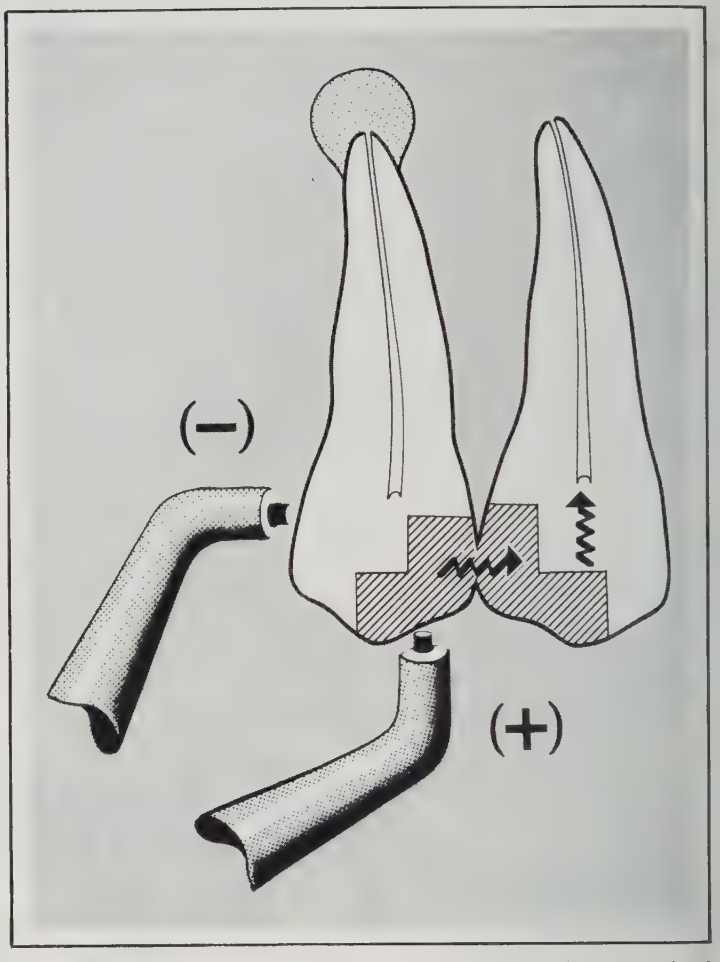

Fig 1 False positive response as a result of the current being transmitted to an adjacent tooth through adjacent restorations.

A false positive reading may also be obtained if interproximal (mesial and distal) restorations are in contact with adjacent teeth. If the electrode is applied to the metallic restoration on a tooth with a non-vital pulp, the current could be transmitted through the contacting metal and stimulate the pulp of an adjacent tooth (Fig 1).

Finally, Grossman says that teeth with full coverage restorations, either gold or porcelain, cannot be tested unless a cavity is prepared through the crown to provide access to tooth structure. This technique being necessary, one may tend to think of the electric pulp test through a cavity prepared in the restoration as a last resort, in cases where other methods of testing pulpal integrity have failed to establish the diagnosis.

It has been shown that a statistical correlation exists between the negative response to electric pulp testing and the presence of a necrotic pulp.

SOURCES OF VARIATION

Stark, et al[7] have outlined sources of variation in the use of the electric pulp tester which involve the morphology of the enamel and dentine. Both the thickness of enamel and dentine, as well as the degree of mineralization of each, and the amount of secondary and tertiary dentine present, will affect the pulpal response recorded. Anterior teeth have thinner enamel and less dentine, and therefore respond earlier.

In general, in reviewing major sources of variation in pulpal response to electric stimulation, King lists such factors as:
(1) age of patient, (2) mental and emotional state of the patient, (3) drug administration, (4) individual pain threshold, (5) recent trauma, and (6) recent orthodontic treatment. He claims that all of these factors can lead to variations in the response in electric pulp testing.

TRAUMA AND ELECTRIC PULP TESTING

It has been suggested for some time that there is no point in performing pulp tests on recently traumatized teeth. It was suspected that teeth would react with erratic responses to the pulp tester if they had been recently traumatized, but this view is no longer valid, and baseline pulp testing should be carried out after injury to the teeth as soon as is practical. Many of these teeth will respond in the normal range, similar to the control teeth. Abnormal responses, or changes in relative readings at a later date, would then be viewed with suspicion. A negative response, on the other hand, will occur less frequently, and in special cases may be due only to a refractory nerve. Further monitoring over the next three to six months, in the absense of other symptoms, will establish if the pulp tissue is still viable.[6,9]

PULP TESTING AND IMMATURE TEETH

Teeth which are only partially erupted and roots that are incompletely formed will initially react negative to the pulp tester. As the apex matures, neural fibres will arborize in the sub-odontoblastic area and the pulp will then begin to react to the electric pulp tester. In the past, if immature teeth were traumatized, then tested and found not to react, the trauma to the apical vessels was blamed for not giving a true response. One must always evaluate the maturity of the root apex before deciding that the pulp has been devitalized due to trauma. Fulling and Andreasen[10] found that the cold test gave more consistant results when attempting to assess the vitality of a particular pulp.

HISTOLOGICAL CORRELATION

Stark et al,[7] in reviewing the literature, reported that they found little or no correlation between the pain perception threshold and the histologic status of the pulp. At a given degree of pulp degeneration, there can be a wide range of clinical responses. Patients with a given amount of pulp degeneration compared to those with the same amount of pulpal degeneration may react very differently in terms of vitalometer reading. However, they did find that a statistical correlation exists between the lack of response to electrical pulp stimulation and the presence of a necrotic pulp.

Bhaskar and Rappaport[11] found that some teeth which had no response to electric stimulation were found to be vital upon opening into the pulp chamber and that some teeth with totally necrotic pulps were able to respond positively to electrical stimulation.

These findings should not be considered the norm, however, as the above situations occur in only a small percentage of the cases. If we realize that these variances can occur, then we are not too surprised if our interpretation of the clinical findings does not match exactly to the pulp pathology.

ELECTRIC PULP TESTING AND RUBBER GLOVES

Recently, concern has been voiced as to the validity of electric pulp testing if the operator is wearing rubber gloves during testing. With the increased incidence of communicable diseases in the patient population, there is an increased use of rubber gloves during administration of dental treatment. Since rubber is well known as a good insulator against electrical transmission, it may have an effect on the use of the monopolar vitalometer in pulp testing. King and King[12] studied the effect of using rubber gloves during electric pulp testing. They reported that if control teeth (such as contralateral and adjacent teeth) are also tested, the diagnosis, through comparison with control teeth, is not hindered by the use of rubber gloves. They did find, however, that when rubber gloves are worn the readings obtained were slightly higher.

TECHNIQUE STANDARDIZATION IN ELECTRIC PULP TESTING

Mumford and Bjorn[13] suggest a correct technique for using the electric pulp tester. It is essential to follow such a standardized technique in order to avoid erroneous recordings. They state that the tooth must be totally dry to avoid having the current transmitted across the tooth surface to the gingival tissue. This step is so essential that in some difficult cases Millard[4] even recommends rubber dam application prior to pulp testing.

Millard also states that the application of the electrode must always be on enamel. A medium of paste with a high dielectric constant and a water base, such as Electro Cardiogram Paste* or toothpaste, is used. This will assure transmission of the impulse. The paste must be localized to the area between the pulp tester's electrode and tooth structure. This localization is necessary in order to avoid having the current flow to other tissues as it would if the tooth were wet.

It is also recommended to start the testing procedure on an intact contralateral tooth as a control. This prepares the patient for a normal response. All teeth in the affected quadrant should then be tested.[14] These readings are recorded and dated in the patient's chart. By combining these results with other tests made during the examination, an attempt can now be made to diagnose the state of the pulp tissue.

CONCLUSION

It is generally agreed that stimulation of the dental pulp through application of electric current to tooth structure can be a valuable diagnostic aid although the reliability of the electric pulp tester should be considered with caution. It has been shown that a statistical correlation exists between the negative response to electric pulp testing and the presence of a necrotic pulp. However, little correlation has been found between reaction of the pulp to electrical stimulation and the histopathology of that pulp. It has also been shown that considerable variance exists between the electrical output of different electronic pulp testing instruments. Many authors have noted possible sources of inaccuracy and incorrect responses in electric pulp testing.

It is recommended that the electric pulp tester be used in conjunction with other tests, such as radiographs, plus subjective and objective symptoms. It is important to remember that the electric pulp tester should not be used alone as a conclusive test, just as the radiograph should not be used alone in making a diagnosis. No attempt should be made to state the degree of degeneration of the pulp based on elevated or decreased vitalometer readings.

*EKG sol® Burton, Parsons & Co. Inc., Montreal.

Dr. Joel Antel, a private practice dentist in Winnipeg, Manitoba, was a fourth year dental student at the University of Manitoba when this paper was written.

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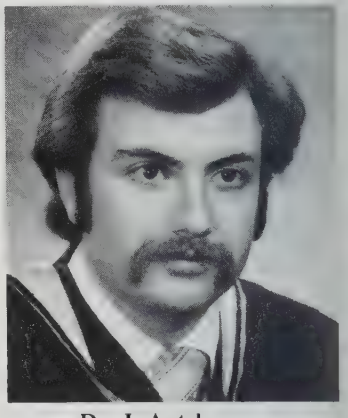

Dr. J. Antel

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Elizabeth McKee, rédacteur en chef
Journal de l'Association Dentaire Canadienne
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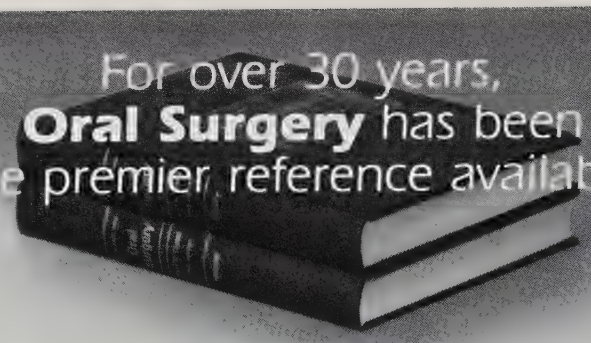

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Ralph R. Lobene
with Alix Kerr

The Forsyth Experiment

Harvard University Press, 1979
$15.00

Since 1959 at least ten different research programs in the United States and Canada have demonstrated that auxiliaries with relatively brief advanced training can fill dentist-prepared cavities, achieve finished restorations of high quality and significantly increase a supervising dentist's productivity and net income.

The Forsyth Experiment differs significantly in that the trainees carried out, under supervision, the irreversible duties of anaesthesia administration and cavity preparation in addition to placing and finishing restorations.

In contrast to the abruptly terminated 1949 attempt by Forsyth to explore a dentist-supervised adaptation of the New Zealand auxiliary program (a project which resulted in a bitter debate amongst the American Dental Association House of Delegates and the Massachusetts Dental Society), this more recent experimental study (1972-74) sought and received sympathetic endorsement from state educators and practitioners. The rapidly advancing care delivery crisis arising from Medicaid coverage of dental payments did much to bring home the need for changes to the profession's rank and file.

Forsyth's rationale for undertaking the recent study is based on the premise that by delegating routine restorative procedures, which currently make up the bulk of the public's need for dental care, dentists can serve many more patients per day, reduce restorative costs, devote more of their own time to challenging procedures such as fixed prosthodontics and actually increase the net income of their practices.

The question, then, was whether or not the traditional dental hygienist could be trained as an "advanced skills hygienist" and taught to give local anaesthetic injections and do high quality cavity preparations and restorations through relatively modest additions to their existing two-year diploma program. Further, the study would have to compare the productivity of such trainees with that of traditional dentist-assistant teams and, finally, determine the impact employing advanced-skills hygienists might have on the costs associated with the delivery of dental health care.

From the outset, the training program took much less time than anticipated. With an actual training time of 25 weeks (as compared with a projected 47-week training time) additional, more complex cavity preparations, such as those requiring pin retention, were able to be included. The implication here is that individuals with a dental hygiene background could learn to provide restorative dentistry in a relatively short period of additional training which might be incorporated into the two-year hygiene program by revising the existing curriculum. The fallacy in this thinking is that every one of the ten hygienist trainees in the experiment had a minimum of seven months private practice experience before the training in advanced skills commenced.

As with the learning rates, the productivity improved rapidly, with most trainees being capable of consistently producing a mean of five surfaces per hour as compared to six for the dentist-assistant working under similar conditions.

Much is made of the apparent economies associated with training hygienists for an additional 25 weeks as compared with training a dentist for seven or eight years; however, the well-documented differences in practice life-span are completely ignored. Recent studies by Pelton, et al., reported in the J.A.D.A. in 1973 indicate that the introduction of expanded duty auxiliaries has been plagued by high rates of employee absence and turnover. These same problems will have to be faced by the average dentist in private practice who enlarges his staff of auxiliaries.

Qualitative ratings of clinical care delivered by the advanced skills hygienists were obtained in eight separate assessments. These included three blind evaluations by extra-mural evaluators, daily ratings by intra-mural evaluators, a follow-up radiographic evaluation of completed restorations, success-rate monitoring of local anaesthesia administration attempts, and two surveys of patient acceptance of the auxiliaries and the services they provided.

In a commendable effort to minimize the subjectivity of the evaluations, the examiners received an Evaluator's Manual which set out various criteria for evaluation of the restorative procedures. Every effort was made to ensure the "blindness" of the

evaluations, as well as their objectivity, and I can find no quarrel with the general conclusions that, with the close supervision as done at Forsyth, the quality of the routine, uncomplicated restorative procedures can be comparable to that of practising dentists.

The bitewing radiographic assessment for overhangs implies a significantly better score for the trainees in the study, but unfortunately, for comparative purposes, a dentist-performed restoration study in 1941 and another in 1957 tend to be somewhat misleading when compared with the Forsyth's closely supervised experimental results in 1974.

No significant untoward effects are reported for the more than 19,000 attempted local anaesthetic administrations — three cases of transient paresthesia were observed — and the less than 15 per cent failure rate for mandibular blocks augers well for the effectiveness of the nine hours of your clinical training and practise the trainees were given in local anaesthesia procedures.

The two patient surveys were, unfortunately, pretty heavily weighted in favor of a positive response both for patient acceptance and the services performed. The author appears to place great emphasis on these, particularly in evaluating how the patient reacted to the way he or she was managed. One must be cognizant of the fact that all services rendered in the experiment were free and that surely must affect not only patient acceptance but their willingness to respond positively to such questionnaires. It is interesting to note that, during the clinical phase of the experiment, it was found that the only way to maintain an efficient patient flow and optimum use of auxiliaries, was to overbook. I seriously doubt the use of this in private practice.

The final and paramount goal of the study was to explore various clinical team configurations, identify the most effective working combination of dentists, advanced skills hygienists, and support personnel and establish whether the optimal combination could make it possible to deliver quality care to more patients at lower cost. Obviously, where no fees were being charged in the experiment, hypothetical earnings and expenses, based on a multitude of assumptions, had to be accepted. In spite of this, reasonable extrapolations of potential earnings in various dentist-advanced skills hygienist-assistant combinations were able to be made.

"The Forsyth Experiment" must surely stimulate organized dentistry . . .

The "assembly-line" concept of practise, which has been widely touted as among the dire consequences of expanded-role auxiliaries by those members of our profession dead set against change, was demonstrated to be uniquely unattractive as dentist boredom becomes a significant factor where one dentist supervises many auxiliary teams full time. Rather, the findings tend to support the conclusion that a solo private practitioner could probably supervise only one or two auxiliary teams in order to make good clinical use of his own non-supervisory time, as well as monitor quality. The study indicates that such an approach may yield significant increases in net income, or, conversely, the potential of providing more services for less cost.

In spite of a limited number of trainees, some misleading assumptions about costs and the unfortunate termination of the study before it could be tried in the "real world" of private practice, the Forsyth Experiment must surely stimulate organized dentistry to re-examine its unwillingness to endorse the training and practice of expanded duty auxiliaries with adequate control and supervision.

Dr. Lobene is Dean of the Forsyth School for Dental Hygienists and Alix Kerr is a professional writer.

"The Forsyth Experiment" was reviewed by Daniel MacIntosh, DDS. Dr. MacIntosh practises in Halifax, Nova Scotia. He is scientific chairman of the Canadian Academy of Restorative Dentistry and president of the Halifax County Dental Society.

Richard A. Morton, DDS

The Tooth, The Whole Tooth and Nothing But...

Vantage Press Inc., 1979
New York, NY

To use the author's own words, he has "attempted to present material in layman's language that can assist you in understanding basic diagnosis of your dental problems, proper treatment and care to ensure long-lasting benefits from treatment. If this material has been carefully studied, you may now possess knowledge that can assist you and your

family in that search for a good dentist, and in the process avoid overpriced, or totally incompetent dental work."

True to his word, Dr. Morton discusses diet, hygiene, plaque, fluoride and some oral infections in terms that maybe useful to the uninformed reader. In addition he considers diagnostic problems, X-rays, allergies, pain, T.M.J. syndrome and several other aspects of clinical dentistry. He then proceeds to identify, define and judge the specialty groups.

Had he stopped there the book might have had some value. Regrettably, he uses far too much of the book as a forum to lash out at dentists whose philosophies and points of view are not his and to criticise various techniques and principles in such a one-sided way as to leave the reader with the impression that only Dr. Morton knows best.

The reader, and remember this book is aimed at the layman, is exposed to the following comments: "Several new patients . . . told me their previous dentist took full mouth X-rays once a year. This is totally unnecessary — only a money-making device." . . . "As treatment becomes more complex, and hence more costly, a greater potential for failure is closer to reality, if not more certain, than no treatment at all." . . . "The sole use of topical anaesthesia on children for single fillings with no injection is sufficient in about 95 percent of all young patients, when working on deciduous teeth." . . . "Hematomas . . . there should be no concern when this happens; healing is usually rapid."

On the subject of restorative dentistry without using rubber dam the author states, "The final restoration is worthless, and will inevitably fail, at which time the same dentist or any other will be happy to do bigger and better things for your well-being."

Crown and bridge, "The Gold Merchants", is condemned out-of-hand. One of his arguments against crowns is that a friend of his "felt like crying" when he saw how much tooth structure was cut away when doing the preparations. His suggestions for alternatives are R.P.D's, pin composites, composite bridges and stainless steel crowns. Aside from cost, another of his criticisms of crowns is that they leak and allow decay to develop undetected underneath — apparently this problem doesn't afflict his stainless steel crowns.

Fixed band orthodontics "The Banded Bandits", causes prolonged treatment, and fees, periodontal and root resorption problems, frequently rampant caries and 50 percent of all cases relapse. He states, "Dentists everywhere are well aware of all the damaging effects in this "standard" but dominant U.S. method of treatment. Perhaps they remain mute because of all the work generated in restorative dentistry that might otherwise not have existed."

On genetics he says, "If for instance, two or three generations eat only a very soft diet, the teeth genes get the idea these teeth are not badly needed. The genes are then altered and certain teeth are missing."

On oral hygiene — use a hard brush, says Dr. Morton, a soft one is useless. Use four or five brushes alternately so their bristles remain firm. "The best test, however to determine whether or not the teeth and gums are clean, is accomplished by running the tongue over these surfaces. There should be no 'fuzzy' feeling."

There is lots more where all that came from.

To cap it all he periodically tells us of his clashes with his state licensing board and peer review process, both of which he holds in low opinion. He claims to have been subject to well-organised, "almost Mafia-like" harassment by his fellow dentists. Somehow he feels this proves the veracity of his book.

Dr. Morton has apparently utilised techniques and philosophies over the years that differ from his peers and they have not thanked him for it. He has now resorted to the disguise of a consumer advocate with the intent of helping the lay person. What this book has actually done is create or nurture an air of suspicion and distrust for all dentists. It may not have been his objective to damn us all but I think the uninformed reader will see that we have all been painted with the same brush. Surely distrust and suspicion are counter-productive to any attempts at successful treatment.

I cannot recommend this book to dentists or members of the general public.

"The Tooth, The Whole Tooth and Nothing But . . ." was reviewed by Dr. John Christie. Dr. Christie practices in Bedford, Nova Scotia. A Restorative Dentistry lecturer (part-time) in Dalhousie's Dental School, he is the organising co-chairman of the 1980 annual convention of the Canadian Dental Association in Halifax and immediate past president of the Nova Scotia Dental Association.

Nouvelles Publications

Richard A. Morton, DDS

THE TOOTH, THE WHOLE TOOTH, AND NOTHING BUT . . .

ou, le guide du consommateur à la bonne médecine dentaire par Richard A. Morton, D.D.S.

Vantage Press Inc., 1971
New York, N.Y.

De son aveu même, l'auteur de ce livre a voulu "présenter, dans un langage simple, des informations qui peuvent vous aider à comprendre les principaux diagnostics de vos problèmes dentaires, les traitements qui leur sont appropriés ainsi que les soins qui prolongent les bienfaits de ces traitements. Si vous lisez attentivement ce livre, vous pouvez maintenant savoir ce que vous et votre famille devez faire pour trouver un bon dentiste et éviter de recevoir des soins dentaires qui ne sont pas tout à fait adéquats ou qui coûtent trop cher."

Fidèle à son projet, le Dr Morton parle de régime, d'hygiène, de plaque dentaire, de fluorure et de certaines infections buccales dans des mots que le profane peut facilement utiliser. Il considère aussi les problèmes de diagnostic, les rayons-X, les allergies, les douleurs, le syndrome de T.M.J. et plusieurs autres aspects de la médecine dentaire. De plus, il nomme, définit et apprécie les différents groupes de spécialités.

Si le Dr Morton s'en était tenu là, son livre aurait quelque valeur. Malheureusement, il s'en sert trop comme d'une tribune pour fustiger les dentistes qui ne partagent pas ses idées et ses points de vue, et pour critiquer différentes techniques et différents principes d'une façon si étroite que le lecteur a l'impression que seul le Dr Morton constitue une autorité en la matière.

Parlant de dentisterie restorative, l'auteur déclare sans ambages: "L'opération ne vaut rien et, inévitablement, elle finira par échouer. Alors, un dentiste, le même ou n'importe quel autre, se fera un plaisir de vous proposer un traitement plus élaboré et plus efficace pour satisfaire à votre bien-être."

Couronnes et bridges son condamnés sans appel. Un des arguments du Dr Morton contre les couronnes est la réaction de l'un de ses amis qui, pendant les préparatifs de la pose, "eut envie de pleurer" en voyant l'importante quantité de tissus qu'on retirait de sa dent. Outre leur coût, il critique encore le fait que les couronnes ne sont pas étanches et qu'il est impossible de déceler les caries qui peuvent se former dessous, — un problème qui, apparemment, n'affecte pas les couronnes en acier inoxydable.

Les appareils d'orthodontie fixes exigent un long traitement, coûtent cher, créent des problèmes d'ordre périodontal, entrainent la résorption des racines, multiplient souvent les caries et, dans la moitié des cas, les malformations dentaires ne sont pas corrigées. Et le Dr Morton d'affirmer: "Partout, les dentistes connaissent bien tous les dommages causés par cette méthode de traitement "normalisée" qui prévaut aux États-Unis. Sans doute se taisent-ils parce que tous les traitements établis par la dentisterie restorative ne seraient pas dispensés autrement."

À propos de génétique, il déclare: "Si, par exemple, pendant deux ou trois générations, les gens se nourrissent d'aliments très tendres, leurs gènes dentaires établissent que leurs dents ne sont pas absolument nécessaires. Les gènes sont alors modifiés et certaines dents viennent à disparaître."

Pour une bonne hygiène buccale, le Dr Morton recommande l'usage d'une brosse à dents aux soies dures. Une brosse à dents aux soies molles ne vaut rien, dit-il. Il faut encore avoir cinq ou six brosses qu'on utilise alternativement de manière à ce que les soies restent fermes. "Toutefois, la meilleure façon de déterminer si, oui ou non, les dents et les gencives sont propres, c'est de passer la langue sur leurs surfaces. Il ne devrait y avoir aucune sensation de "velouté."

Le livre contient plusieurs autres observations du même genre. Pour comble, le Dr Morton rappelle à tout instant les conflits qu'il a eus avec le bureau des permis et le conseil de révision de son État. Aussi les tient-il en bien piètre estime. Il prétend qu'il a été victime de harcèlements bient concertés de la part de ses confrères et il compare leurs menées "presque à celle de la mafia." Pour une raison ou pour une autre, croit-il, ce fait prouve que son livre est véridique.

Il appert donc que le Dr Morton a, au cours des ans, utilisé des techniques et avancé des idées qui diffèrent de celles de ses confrères et que ceux-ci ne l'en ont pas remercié. C'est pourquoi il se pose en défenseur des consommateurs et veut aider les profanes. De fait, ce livre invite à la méfiance et ne fait que lever des soupçons à l'égard de tous les dentistes. Le but du Dr Morton n'était peut-être pas de nous condamner tous, mais je pense que le lecteur non averti nous verra tous sous un même jour. Or il est certain que la méfiance et le doute produisent des résultats contraires à ceux que vise tout traitement.

Je ne peux donc recommander ce livre ni aux dentistes, ni au grand public.

John S. Christie, D.D.S., praticien à Bedford, en Nouvelle-Écosse. Il est professeur (à temps partiel) de dentisterie restorative à l'École dentaire de Dalhousie et président sortant de l'Association dentaire de la Nouvelle-Écosse.

Note de l'éditeur: Ce livre THE TOOTH, THE WHOLE TOOTH, AND NOTHING BUT . . . n'est pas édité en français.

Sciences légales

Suite de la page 585

données aux dossiers des personnes qui sont recherchées et, lorsqu'on en trouve une, on peut s'assurer de son identité grâce à son dossier dentaire.

Au contraire, quand il s'agit de cadavres non identifiés, les résultats de l'autopsie et de l'examen dentaire sont compilés sur des cartes et confiés ainsi à l'ordinateur. Ces données pourront éventuellement servir à identifier, par comparaison des dossiers dentaires, une personne portée disparue.

La carte dentaire a été mise au point par le CIPC. Il s'agit d'un formulaire chiffré distribué par les polices locales. Une partie du formulaire est remplie par la police et l'autre est complétée par le dentiste. Présentement, ce formulaire est valable pour la dentition définitive seulement.

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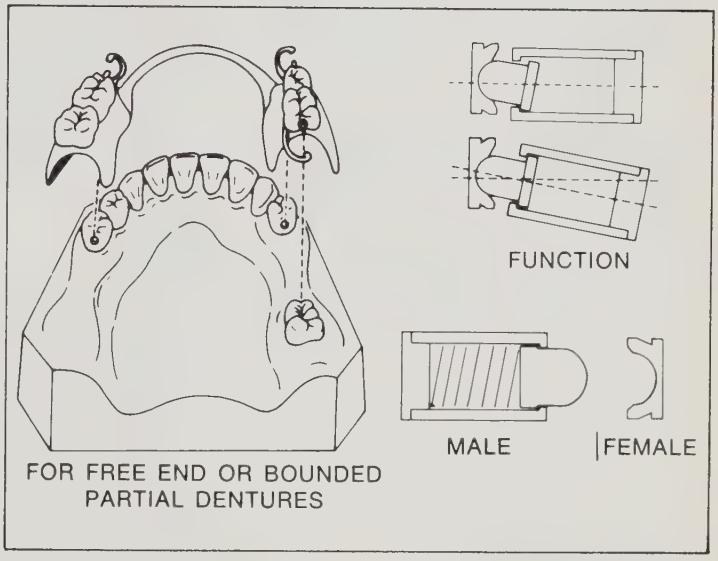

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Announcements

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canada

Canadian Dental Association, 1980 National Convention, Halifax, Nova Scotia, July 13-16, 1980. Contact: Dr. T.D. Ingham, Nova Scotia Dental Association, P.O. Box 604, Halifax, N.S. B3J 2R7.

L'Association Dentaire Canadienne, Congrès national 1980, Halifax, Nouvelle-Écosse, 13-16 juillet 1980. Pour renseignements: Dr T.D. Ingham, Association Dentaire de la Nouvelle-Écosse, B.P. 604, Halifax, N.-É. B3J 2R7.

November/Novembre

Toronto Academy of Dentistry Annual Winter Clinic, Royal York Hotel, Toronto, November 22, 1979. Contact: Academy of Dentistry, 234 St. George Street, Toronto, Ontario, M5R 2P2.

December/Décembre

The Royal Dental College, Copenhagen, two-day seminar, oral cancer, J.J. Pindborg. Faculty of Dentistry, University of Toronto, December 7-8, 1979. Contact: Mrs. E. Ryley, Department of Oral Surgery, Faculty of Dentistry, 124 Edward St., Toronto, Ont. M5G 1G6. Phone: (416) 978-2842.

International

November/Novembre

IV International Congress-Golden Jubilee of the Academia de Estomatologia del Peru. Third Spanish-Latin American Dental Congress, Lima, Peru. November 14-17, 1979. Contact: Dr. Antonio Pinillo Soteros. Chota 760-Lima, Peru.

30th Annual Scientific Congress of the Korean Dental Association. Guaruja. Brazil, November 25-December 2, 1979. Contact: Rua Humaita 389, Cx. Postal 2523, C.E.P., 01321 — São Paulo, Brazil.

Society of Oral Physiology and Occlusion, New York, N.Y., U.S.A., November 26, 1979. Contact: Mr. Irving Anderman, 3 Linden Pl., Middletown NY 10020, U.S.A.

National Institute of Dental Research and the National Institutes of Health, Bethesda, Maryland, U.S.A. November 28-30, 1979. Pre-registration is a requirement. Contact: Ms. Janis E. Baker, CDP Associates Inc., 6000 Executive Boulevard, Suite 510, Rockville, MD 20852, U.S.A. Phone: (301) 468-0696.

2nd World Congress on Pain and Anxiety Control in Dentistry, New Delhi. India. November 27-29. 1979. Contact: Dr. P. Virapin, 15 avenue de Maurin, 3400 Montpellier, France.

December/Décembre

Implant Seminar VI Ramus Frame Implant, Birminham, AL U.S.A., December 8-9, 1979. Contact: Alabama Implant Study Group, P.O. Box 4682, Birmingham, AL 35206, U.S.A.

1980

Ninth São Paulo Odontology Congress, 15th Brazilian Odontology Congress, 12th Latin American Seminar of Odontology, São Paulo, Brazil, January 19-26, 1980. Contact: Secretary, São Paulo Dental Association, Rua Humaita, 389, P.O. Box 2523, São Paulo, Brazil.

First International Dental Conference, Bombay, India, January 20-24, 1980. Contact: G.B. Shankwalker, Government Dental College and Hospital, Bombay 400001. India or Jangoo D. Kapadia, Sunkersett Mansion, Nan's Chowk, Bombay 400 007, India.

XVII Congress of the Federación Odontológica de Centro América y Panama (FOCAP), City of Panama, Republic of Panama. January 21-25, 1980. Contact: Dr. Hernàn de J. Ramos M., Apartado Postal 6677, Panamà 5, Republica de Panamá.

16th Annual Dental Convention of the Jamaica Dental Association, Montego Bay, Jamaica, January 27-31, 1980. Contact: Basil Keane, 40 Union Square, Kingston, Jamaica, W.I.

East Coast District Dental Society, Miami Winter Meeting, Fontainebleau Hilton, Miami Beach, Florida, February 1-3, 1980. Contact: Barbara Sims, Executive Director, East Coast District Dental Society, 420 South Dixie Highway, 2-E, Coral Gables, FL 33146, U.S.A.

Australian Dental Association Convention, Hobart, Australia, February 16-21, 1980. Contact: H. Hammer, 130 New Town Rd., New Town, Tas 7008, Australia.

First Ever Yukon Dental Convention, Whitehorse, Yukon Territory, to be held in conjunction with Rendezvous, February 22-23, 1980. Contact: Dr. R. Pearson, 309 Wood St., Whitehorse, Yukon Territory.

Virgin Islands Dental Association Winter Meeting, St. Thomas, U.S. Virgin Islands. February 25-March 2, 1980. Contact: Virgin Islands Dental Association, c/o Travel Services, P.O. Box 1691, St. Thomas, U.S. Virgin Islands 00801.

Eighth Australian Orthodontic Congress, Perth, Australia. March 23-29, 1980. Contact: Hon. Secretary, Australian Society of Orthodontists, 179 St. George's Tce. Perth, W.A. 6000, Australia.

The Bermuda Dental Association Spring Meeting, Bermudiana Hotel, Hamilton, Bermuda, March 24-25-26, 1980. Contact: The Secretary, The Bermuda Dental Association, P.O. Box 785, Hamilton 5, Bermuda. Phone: (809) 292-7676.

British Columbia College of Dental Surgeons 1980 Convention, Hyatt Regency Hotel, Vancouver, May 27-31, 1980. For further information, please contact: Venue West Ltd., 1704 — 1200 Alberni Street, Vancouver, B.C. V6E 1A6, phone: (604) 681-5226.

Schweizerische Zahnarzte-Gesellschaft (SSO), Interlaken, Switzerland, May, 1980. Contact: Franz Plattner, Chefredaktor des Bulletins, Ottoplatz 21, 7000 Chur, Switzerland.

Eighth International Conference on Oral Biology, Tokyo, Japan, June 1-3, 1980. Its theme will be: Oral Disease Prevention — its implications and applications. An interesting study tour program in

Japan, China and Thailand is being arranged in connection with the conference. Contact: Dr. George S. Beagrie, University of British Columbia, Faculty of Dentistry, 2075 Westbrook Place, Vancouver, B.C. V6T 1W5.

86th Meeting of the American Dental Society of Europe, Stratford-upon-Avon Hilton, Stratford-upon Avon, England, June 24-28, 1980. Contact: The Secretary, Dr. Brian J. Parkins, 57 Portland Place, London W1N 3AH, England.

British Dental Association Centenary Meeting, London, England, July 10-11, 1980. Contact: R.B. Allen, secretary, British Dental Association, 64 Wimpole Street, London W1M 8A1, England.

New Zealand Dental Association Jubilee Conference 1905-1980, Dunedin, New Zealand, August 25-29, 1980. Contact: The Conference Secretary, P.O. Box 647, Dunedin, New Zealand.

Fédération Dentaire Internationale, International Dental Show. Hamburg, Germany. August 25-September 7, 1980. Contact: M. Jean-Pierre Schweizer, sales manager. Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 309, Toronto, Ont., Can., M5H 1L9.

Fédération Dentaire Internationale, 68th Annual World Dental Congress, Hamburg, Germany, September 2-7, 1980. Contact: Dr. R. Braun, Bundesverband der Deutschen Zahnärzte, Universitaisstrasse 73, 5000 Köln 41, Germany.

Third National Convention and III International Conference of Oral Health, Lima, Peru, October 1-4, 1980. Contact: Dr. Gilberto Dominguez, Av. Benavides 264-902, Lima 18, Peru, South America.

Ontario Dental Association 113th Annual Spring Meeting. The Sheraton Centre, Toronto, Ontario, April 27-30, 1980. Contact: Mrs. W.C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P1.

Alabama Implant Congress VI, Birmingham, AL U.S.A., May 1-4, 1980. Contact: Alabama Implant Study Group, P.O. Box 4682, Birmingham, AL 35206, U.S.A.

1981

Fédération Dentaire Internationale, **72nd Annual World Dental Congress,** Helsinki, Finland, August/September, 1984.

Obituaries/ Nécrologies

KAHN, Melville, graduated University of Toronto, 1934. A native of Brandon, Manitoba, Dr. Kahn practised in Saskatchewan and British Columbia. Survived by his wife, Anne; son, Lawrence; and daughter, Marcia.

CARMICHAEL, James Berton, in London, Ontario. Graduated University of Toronto, 1910. Dr. Carmichael practised in Toronto, Ontario, Medicine Hat, Alberta and Edmonton, Alberta until retirement in 1970.

CLINE, Harold MacKechnie, graduated University of Toronto, 1924. Dr. Cline was president of the Vancouver and District Dental Society, the British Columbia Dental Association, the College of Dental Surgeons of B.C. and the Canadian Dental Association. He was an affiliate member of the American Dental Association and a Fellow of the American Society for the Advancement of Sciences and the American College of Dentists.

OLIVIER, Valmore, est décédé en juillet, 1979. Gradué Université de Montréal, 1912.

BUCKLEY, Kenneth, graduated Dalhousie University, 1962. Practised in Ottawa, Ontario. Survived by his wife Joyce and children Gerald, Kelly and Hugh, his mother, Mrs. Mary Buckley and brothers Dr. Alan Buckley and George Buckley.

WYLIE, Geoffrey John, graduated University of Toronto, 1965. Died in Geelong, Victoria, Australia September 29, 1979. Aged 40 years.

SOMERVILLE, Earl Sherwood, in North Bay, Ontario. Graduated University of Toronto, 1923.

HENDERSON, Elmer James, graduated University of Toronto, 1925.

SINCLAIR, Gordon, graduated from the University of Toronto. Born in Ottawa, Ontario, Dr. Sinclair grew up in Swan River, Manitoba. He was 85 years old. Dr. Sinclair practised dentistry for close to 40 years in Plattsville, Ontario, near Woodstock and in Welland. He retired in 1971.

HOUDE, Charles, died at age 83 in New Carlisle, Quebec. Dr. Houde was also a pioneer radio broadcaster in the Gaspe Peninsula. He and his associates opened the first radio station to serve the Gaspe, Magdalen Islands and northeast New Brunswick in 1933.

PROWSE, William R., graduated University of Toronto, 1924. Practised dentistry 50 years in England and Hamilton, Ontario. Survived by wife Violet Evelyn.

SERENA, Floyd M., in Hamilton, September 17. Survived by his wife Frankie Pearson and daughter Donna Marlene Cheatley.

Marketplace

Opportunities Wanted

ORAL SURGEON — Completing three-year fully-accredited oral and maxillofacial surgery residency June 1980 in U.S. major teaching centre. Extensive training in ambulatory anesthesia, orthognathic surgery and trauma. Desire association in Toronto or vicinity. Please reply: c/o Dr. Michael Watt, 125 Rusty Crestway, Willowdale, Ont. M2J 2Y5.

PEDODONTIST — aged 29, seeking associateship and eventual partnership with same or group. Experience in private practice, teaching and hospital dentistry. Reply to CDA Box Number 1931.

MANITOBA — General dental practitioner, B.D.S., University London 1973. Six months' internship, five years' extensive general practice experience, last two months in Canada. Manitoba Board exam 1978. Seeks associateship/partnership in busy, progressive, developing, preventive-oriented practice. Private practice preferred. Other position and any other area considered. Contact: Dr. J.R. Patton, Box 1140, Yellowknife, N.W.T.

QUEBEC — Montreal. Dentiste aimerait travailler avec un confrère n'importe où au Québec. Après un an, possibilité d'association. Pour plus d'informations: Tél. (514) 331-6216 le soir.

Educational Courses

GRADUATE TRAINING IN ORAL PATHOLOGY — The Division of Oral Pathology is currently accepting applications for this program for July 1980. Further information may be obtained from: Dr. D.G. Gardner, Department of Pathology, The University of Western Ontario, London, Ont. N6A 5C1

Associateship Available

BRITISH COLUMBIA — Vancouver. Oral surgery associate required for long established busy specialty practice, both office and hospital oriented, in order to share an increasingly heavy patient load in West Broadway location. Applicant must be certified, or certifiable, in the specialty of oral and

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Red River College, Winnipeg, Man
Wascana Institute, Regina

*Accreditation Eligible status

Catastrophic insurance

The American Association of Oral and Maxillofacial Surgeons (AAOMS) Board of Trustees recently reviewed the possibility of catastrophic health insurance, considered by the United States Congress this summer. The trustees directed that a priority program for the recognition and inclusion of oral and maxillofacial surgery in any catastrophic health bill considered by the Congress be undertaken, reported the AAOMS Forum.

Royal College exams

Part 1 (Basic Sciences) Examinations, leading to Fellowship in the Royal College of Dentists of Canada will be held on Monday, June 16, 1980, in regional centres across Canada. Applications for these examinations, with the $10.00 examination fee, must be received at this office by January 15, 1980. Applications forms (for the Part I examinations) and further information may be obtained from the Secretary-Registrar-Treasurer, Dr. J.E. Speck, Ste. 614, 170 St. George Street, Toronto, Ont. M5R 2M8. Part II (oral and in Oral Pathology written and oral) examinations will be held as usual in Toronto, late in November or early in December, 1980.

Hospital Dental Service & Internship Programs approved by the Council on Hospital Services October, 1979

NEWFOUNDLAND	
Dr. Chas A. Janeway Child Health Centre, St. John's	Dental Service
NOVA SCOTIA	
Izaak Walton Killam, Halifax	Dental Service
Victoria General, Halifax	Dental Service (Restricted to Oral & M.F. Surgery)
QUEBEC	
Centre Hospitalier Notre Dame, Montreal	Dental Service & Rotating Internship
Centre Hospitalier St. Vincent de Paul, Sherbrooke.	Dental Service & Rotating Internship
Hôpital Sainte-Justine, Montreal	Dental Service
Montreal General, Montreal	Dental Service & Rotating Internship
Jewish General Hospital, Montreal	Dental Service & Rotating Internship
Hôpital de l'Enfant Jesus, Quebec City.	Dental Service (Restricted to Oral & M.F. Surgery)
Montreal Children's Hospital, Montreal	Dental Service & Internship
Royal Victoria, Montreal	Dental Service & Rotating Internship
St. Mary's Hospital, Montreal	Dental Service & Internship
Youville Hospital, Sherbrooke, P.Q.	Dental Service
ONTARIO	
Doctors Hospital	Dental Service (Restricted to Oral & M.F. Surgery)
Hamilton Civic Hospitals, Hamilton	Dental Services Internship
Hospital for Sick Children, Toronto	Dental Services (Internship program awaiting survey)
Mount Sinai, Toronto	Dental Services & Internship
Ottawa Civic Hospital	Dental Service
Scarborough General Hospital	Dental Service
St. Joseph's Hospital, London	Dental Service & Rotating Internship
Sunnybrook Medical Centre	Dental Service
Toronto General Hospital	Dental Service & Rotating Internship
Toronto Western Hospital	Dental Service & Rotating Internship
University Hospital, London	Dental Service & Rotating Internship
Victoria Hospital, London	Dental Service (Internship — surveyed & awaiting Council action)
MANITOBA	
Deer Lodge Hospital	Dental Service
Winnipeg Health Science Centre	Dental Service & Paedodontic Internship
SASKATCHEWAN	
University Hospital, Saskatoon	Dental Services & Rotating Internship
ALBERTA	
University of Alberta Hospital, Edmonton	Dental Services & Rotating Internship
BRITISH COLUMBIA	
Children's HOSPITAL, Vancouver	Dental Service

Marketplace

maxillofacial surgery in British Columbia. Reply to CDA Box Number 1928.

ALBERTA — Pincher Creek. Associate to join practice (position available June 1, 1980). Associate needed to replace one dentist leaving three-man preventative practice in Pincher Creek, Alberta (30 miles north of Waterloo Park). Latest equipment, hygiene department, four-day work week. Country living with all big cities amenities. Suitable candidate eligible for partnership. Telephone: (403) 627-3290 collect or after 6:00 p.m. phone: (403) 627-4972.

SASKATCHEWAN — Saskatoon. Associateship leading to full partnership in a well established, modern oriented practice; with one other dentist. All aspects of general dentistry with modern equipment. A large patient volume ensures excellent remuneration for any ambitious individual. Please send reply to: Dr. Keith Morton, 1121 Louise Avenue, Saskatoon, Sask. S7H 2P8. Phone: (306) 374-3266.

SOUTHERN ONTARIO — Associate required to assume most aspects of well established, preventive-oriented practice in conjunction with dentist who will be absent as Federal Member of Parliament. Hygienist in practice. Pelton Crane Equipment. Percentage or salary. Reply to Dr. T.A. Bradley, 103 Lock St., Dunnville, Ont. N1A 1J6. Phone: (416) 774-7608.

Offices and Practices

BRITISH COLUMBIA — Revelstoke. Lucrative, preventive family practice for sale/lease; nestled in the scenic Columbia River Valley of eastern British Columbia. Modern, efficient Cox floor plan suitable for one or two dentists with room for expansion. Excellent financial opportunity in thriving environment with unlimited recreation. Phone collect: (604) 837-5149.

BRITISH COLUMBIA — Southern Interior. Large practice for sale with two associates (one full time, one part time), hygienist, etc. Grossing in area of $450,000 per year with owner take home $170,000 on a 3½ day week, nine months a year. Only good management and financially minded dentists need apply. Present owner wishes to retire at age 40. Excellent terms to right party. Also, an excellent house to be considered. This is an opportunity of a lifetime. Are you wasting your time and energy trying to build a practice? Wasted time is costing you valuable income. Reply to CDA Box Number 1915.

BRITISH COLUMBIA — Vancouver. Present dentist will be vacating an ideally located rental suite at 925 West Georgia Street, Vancouver, in December 1979. The office contains an attractive reception room, business office, laboratory, dark room and two operatories. It also offers an excellent harbour view. Selling price will be set on the depreciated value of capital improvements. Expensive initial costs associated with a new dental office can therefore be considerably reduced. For further information, reply to CDA Box Number 1934.

BRITISH COLUMBIA — Victoria. A good starting office in the downtown area. Two operatories, hygiene area, small personal office, reception and waiting room. Quite efficient but small, with very low overhead. For further information reply to: Dr. K.M. Matheson, #426 — 1207 Douglas Street, Victoria, B.C. V8W 2E7.

BRITISH COLUMBIA — West Vancouver. Spacious (975 sq. ft.) recently decorated, three operatory dental suite. Will sell with or without equipment. Excellent long-term lease. Available July 1980. Reply to CDA Box Number 1936.

BRITISH COLUMBIA — Winfield. For sale: Five year old, fully-equipped, two operatory practice in professional building in Winfield (10 miles north of Kelowna). Contact: Dr. G.W. Lunn, Box 403, Winfield, B.C. V0H 2C0. Phone: (604) 766-2979.

BRITISH COLUMBIA — White Rock. A well established preventive-oriented practice for sale. 800 sq. ft.; two operatories, hygienist room, etc. Equipment ten years old. For further details reply to CDA Box Number 1938.

ALBERTA — High gross practice for sale; 20 minutes from Edmonton; two fully-equipped ultra-modern operatories; Pelton & Crane chairs, Adec carts, Dental-Eze truth systems; share reception area, Panelipse, lab, staff room, patient education room and hygienist with two other dentists. Phone: (403) 481-0503 after 7:00 p.m. week-days.

ALBERTA — Edmonton. Dental practice for sale. Ultra-modern, new, spacious office in heart of downtown. Well-established, high-quality and highly preventative practice. Sharing space with two other dentists and three hygienists. Newly decorated. Ideal opportunity for new or recent graduate. Would consider graduate of 1980 dental class. Reply to CDA Box Number 1939.

ALBERTA — Medicine Hat. Associateship with view to partnership available immediately in modern progressive, preventive-oriented practice. To take over existing practice joining other dentist and hygienist. Fully trained staff. Panoramic radiography, N20 radiation, Cox & Pelton Crane equipment. This well established practice will assure an excellent income at outset. Medicine Hat is a progressive, growing city of 38,000 people; located in the south east corner of Alberta. Reply to: Dr. Cliff Hrankowski. Phone: (403) 526-0777 or 526-7694.

ALBERTA — Red Deer. Dental practice for sale with two fully equipped operatories. Excellent gross to overhead ratio. Desirable location across from hospital. Contact: (403) 346-7705 (office) or 346-8502 (home).

SASKATCHEWAN — Assume Medident lease for complete dental office (includes furniture, filing system, two operatories with Chairman chairs, GE 1000 X-ray units, P&C Executive units with all the options, and Ritter handpieces). Lease expires September 1981; dentist leaving area. Earliest and best offer accepted. Phone: (306) 752-5819 after 7 p.m.

SASKATCHEWAN — For sale: Very busy group practice in a large city. Practice has five dentists and two hygienists. Owner is retiring but is willing to stay on as an associate if desired. For more information reply to CDA Box Number 1940.

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MANITOBA — Winnipeg. Established, busy dental practice for sale. Two operatories fully equipped with very modern equipment. Third room with plumbing. High gross and low overhead. Reply to CDA Box Number 1942.

MANITOBA — Winnipeg. Office space for lease in new building with modern dental facility designed for three dentists and presently occupied by two well-established dentists with demand for a third. In addition to shared space and facilities there are four operatories and a lab available. This is an opportunity to establish a good practice without paying good will. Contact: Dr. G.L. Funk, 230 Henderson Highway, Winnipeg, Man. R2L 1L9, phone: (204) 667-8382.

ONTARIO — Alliston. Dental suite suitable for one or two dentists, available in modern professional office building in small town community. Reply to: Dr. J.J. Derjanecz, P.O. Box 520, Alliston, Ont. L0M 1A0. Phone: (705) 435-6277.

ONTARIO — Hamilton. One half or all of a modern two-dentist, five operatory preventive practice consisting of 2,000 sq. ft. In addition, a large basement for storage and ample parking outside. Cox, Pelton Crane chairs, nitrous oxide, automatic developer and many other extras. A rare opportunity to acquire a quality high gross practice. Reply to CDA Box Number 1932.

ONTARIO — Hawkesbury. Space for rent in newly constructed commercial centre on Main St. in Hawkesbury. Four stores fronting Main St. and twelve units in the rear at street level through an eight-foot arcade corridor. Available in areas of 600 sq. ft. or more. Accessible from street or entrance from parking lot for 160 cars. Dentists urgently required in this area. Apply to: Assaly Realties of Hawkesbury, 129 Main St. E., Hawkesbury, Ont. Phone: (613) 632-2719.

ONTARIO — East Mississauga. For sale: Presently medical doctors home plus offices. Ideally suited for dental practice in developing area. Call Mr. Rohan or Mr. Cahill (416) 275-0400. Cahill R.E. Ltd. Rltr.

ONTARIO — Toronto. Practice for sale or associate required. Fully equipped, downtown, periodontal practice, in medical-dental building. Two operatories (room for third), reception area, waiting room, private office, dark-room, x-ray unit, lab. Or, associate to work three days, hours to suit yourself. Reply to CDA Box Number 1943.

ONTARIO — Toronto (Bathurst-Eglinton). Private sale: Two-storey, air-conditioned, dental and medical suite. Luxurious apartment with en suite laundry, all appliances, ample parking double lot. $259,900, excellent terms, possession arranged. Contact: Dr. Robert Brown, 1739 Bathurst St., Toronto, Ont. M5P 3K5.

ORTHODONTIC PRACTICE — Southern Ontario's Golden Horseshoe, 35 miles from Toronto. Active, well-established, mainly edgewise. Excellent opportunity for immediate income. Will stay for smooth transition. Reply to CDA Box Number 1937.

Opportunities Available

Dental Officers Required — for dental clinics located at Frobisher Bay and Inuvik in the Northwest Territories. Frobisher Bay clinic serves a community of 2,360 in the Eastern Arctic and the Inuvik clinic a community of 3,500 in the Western Arctic. Dental Officer positions involve provision of an active treatment service with emphasis on preventative dentistry for the young. Dental Officers are required to travel to outlying areas to conduct clinics. Please contact: Staffing & Staff Relations Officer, N.W.T. Region, Medical Services Branch, National Health & Welfare Canada, 1401 Baker Centre, 10025 — 106 Street, Edmonton, Alta. T5J 1H2. Telephone collect: (403) 425-5310.

BRITISH COLUMBIA — We are offering a unique opportunity to a mature dentist to share our busy family practice situated in a picturesque alpine environment. The economic climate is excellent, supported by lumber, hydro-electric, railroad and tourist industries, (heli-skiing and alpine recreation unlimited.) Our group practice configuration allows for flexibility of work patterns, learning and consulting opportunities and reduced stress. Please call: Drs. Harold Prussin or Eric Ruby for details. (604) 837-5149.

BRITISH COLUMBIA — Penticton. Dental hygienist required. Full-time position available in highly preventive and people oriented practice. Excellent remuneration; four day week, six weeks holiday with pay; opportunities for postgraduate courses. To work with young, progressive dentist, modern equipment. Position open immediately. Phone: (604) 492-0593 or 493-0540, or write: Dr. R.R. Bentham, 195 — 333 Martin Street, Penticton, B.C. V2A 5K7.

ALBERTA — Grande Prairie. Orthodontist urgently required for a rapid growing city of 20,000 and an area of 50,000. Instant practice. Plenty of work for two orthodontists. City is basically a young population with a large number under third parties. City has all amenities such as raquetball courts, golf course, daily jet service, etc. Reply to CDA Box Number 1924.

ALBERTA — Rockies. Expanding tourist town requires dentist for new medical-dental clinic. Superb recreation in National Park. Reply to CDA Box Number 1941.

SASKATCHEWAN — North Battleford. Dental coordinator. A community minded, prevention-oriented dentist is required to coordinate and expand a children's dental health program. The work involves the expansion of a dental health program in the schools, the supervision of dental auxilliaries, the training of additional staff, some restorative work, and overall administration of the dental program. The Battlefords Indian Health Centre is an independent community health centre run by and for Indian people in the North Battleford District of Saskatchewan. Candidate must be eligible for license in Saskatchewan and have an interest or experience in dental health

DALHOUSIE UNIVERSITY

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The Division of Periodontics invites applications for places in their Post-Graduate Program in Periodontics. This program which is of two years' duration provides both research and clinical experience leading to a Diploma in Periodontics.

Completed applications must be received prior to January 15 of the year in which admission is sought.

Inquiries should be directed to:

Dr. W.I. Vogan
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B3H 3E2

education and children's dentistry. Attractive working, living and salary conditions. For more information phone collect or write to: Ron Albert, executive director, Battlefords Indian Health Centre Inc., P.O. Box 250, North Battleford, Sask. S9A 2Y1. Phone: (306) 445-7734.

ONTARIO — Dryden. Dental hygienist required for busy family practice. Modern fully-equipped dental office. Fishing, hunting, boating, skiing and other recreational facilities. One hour daily flight from Winnipeg and Thunder Bay. Reply in writing to: Box 419, Dryden, Ont. P8N 2Z1.

ONTARIO — London Area. Wanted immediately: Wonderful opportunity for young grad or one relocating. New two-chair, ground floor office. Health reasons. Call collect: (519) 527-1530.

ONTARIO — Toronto. Pedodontist required for busy Pedodontic practice in north Metropolitan Toronto. Opportunities available for partnership. Position available immediately. Applicant must be certified to practise in Ontario. Reply in strict confidence to CDA Box Number 1912.

TAX SHELTER (MURB) — Metro Toronto. Condominium townhouses, semi, 3-5% cash, class 32 CCA 10%, rental and cash flow guarantee, soft costs available. A World Realty Corporation, 276 Jane St., Toronto, Ont. M6S 3Z3. Phone: (416) 766-6700, 762-3366 or 245-5544. Pager 9999.

MICHIGAN — Detroit. Children's Hospital of Michigan has announced the availability of residency positions in pedodontics, beginning July, 1980. The American Dental Association has granted preliminary provisional approval for this two year certificate program, which will prepare the resident for certification by the American Board of Pedodontics. Two residents will be selected each year. The program offers a stipend of $13,000 for the first year and $15,000 for the second year; health and malpractice insurance coverage; and two weeks of annual vacation. To obtain further program information and an application, contact: Dr. James Delaney, dental director, Children's Hospital of Michigan, 3901 Beaubien Blvd., Detroit, MI 48201, U.S.A.

THE UNIVERSITY OF BRITISH COLUMBIA

FACULTY OF DENTISTRY

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Dr. A.S. Richardson
Acting Head, Department of Restorative Dentistry
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University of British Columbia
2075 Wesbrook Place
Vancouver, B.C., Canada V6T 1W5

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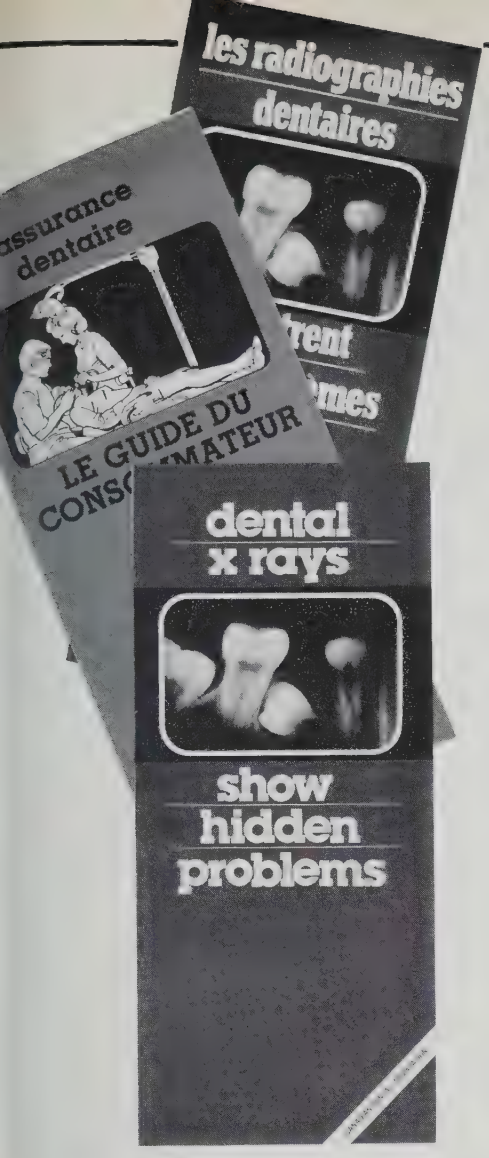

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* NOUVEAU — 1979

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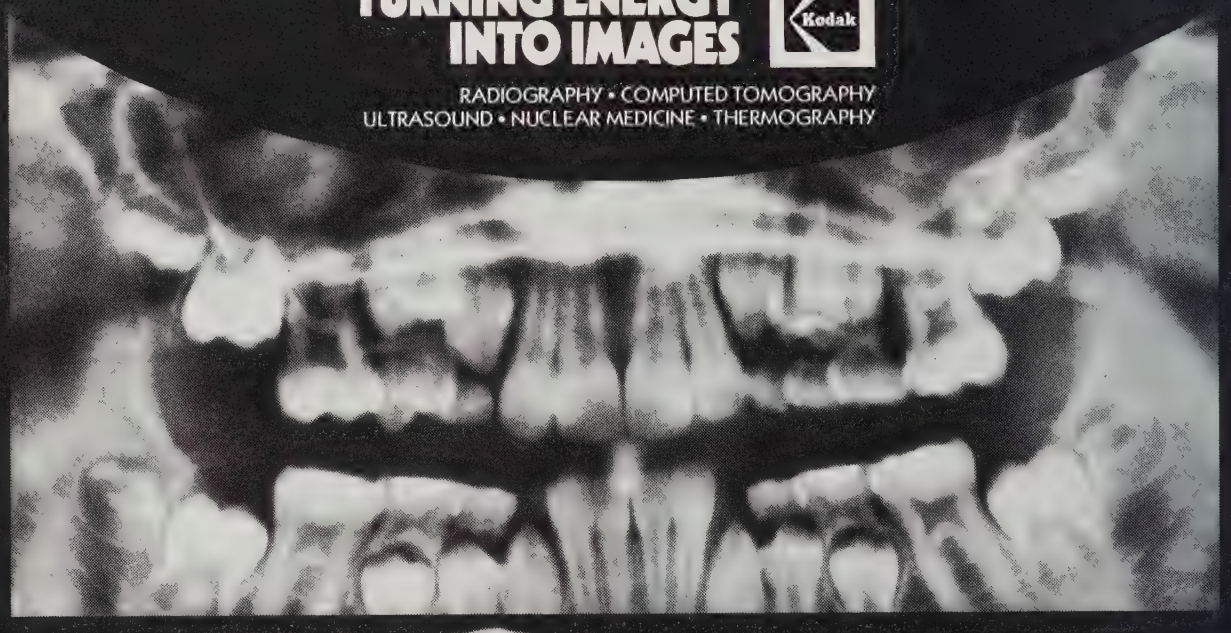

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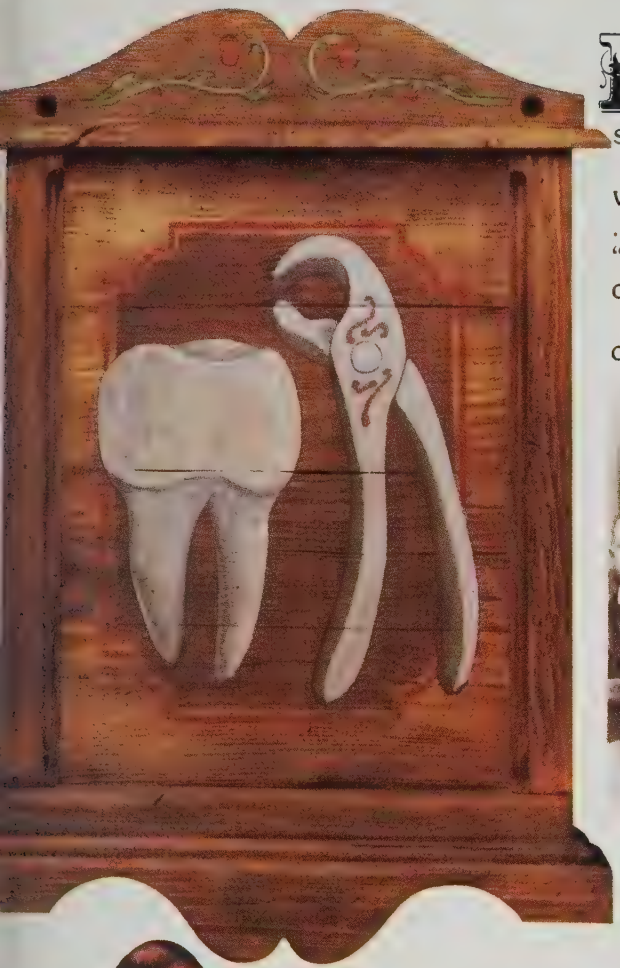

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*Ericsson, Y., The mechanism of the monofluorophosphate action on hydroxy apatite and dental enamel, Acta Odont, Scand., **21**, 341-358 (1963).

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de l'Association Dentaire Canadienne

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International Year of the Child

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Implications of Dental Disease — an economist's perspective — Evans

Implications of Dental Disease — a sociologist's perspective — Cohen

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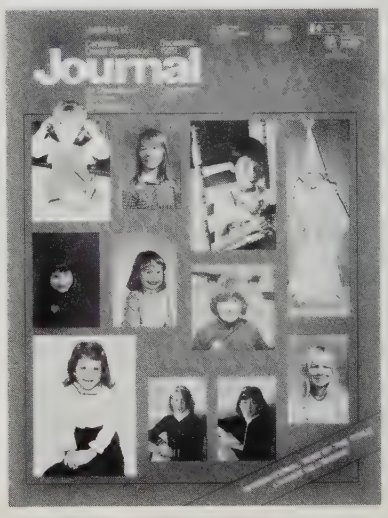

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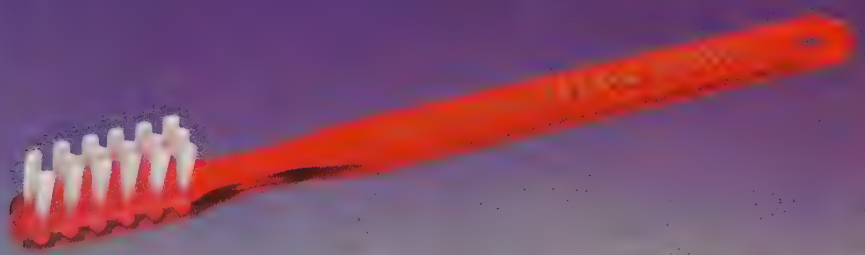

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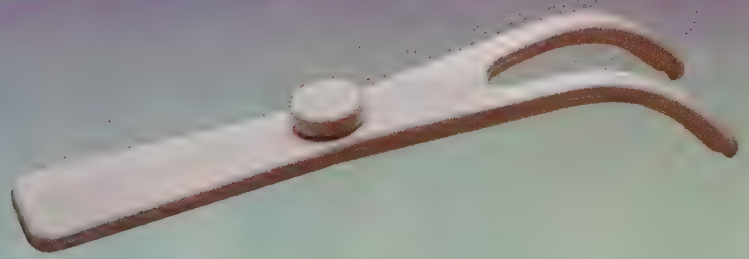

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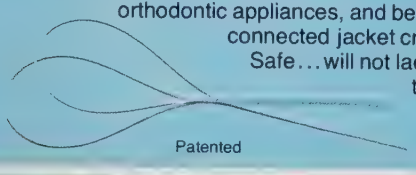

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YEAR OF THE CHILD

In the ninth month of the "Year of the Child" a remarkable dental event occurred in Quebec City. The Royal College of Dentists of Canada presented its first Symposium, an outstanding two-day program available to all who attended the annual convention of the Canadian Dental Association.

Two aspects of the program are worthy of comment here. The first is the content of the program presented by dental scientists of world stature. Reported in this issue are papers derived from the program.

While devoted to children, it was not a paedodontic program. The material presented was basic to the consideration of dental care for children and ultimately all people. We looked at several questions — How does the perception of dental health vary between provider and consumer? — How can we avoid conflict of interest when we are the investigators, the prescribers and the providers of treatment?

We were presented with an excellent evaluation of current preventive measures. We were informed with up-to-date "state of the art" reviews of the etiology of dental diseases. Many of the answers created new questions.

For instance, Helm presented evidence to show that malocclusions found in modern Danes are largely due to the ravages of dental caries and lack of vigorous masticatory function. He also pointed out that aside from the psycho-social factors there is scanty evidence to indicate that malocclusions are a serious threat to health and function.

When we treat to an "ideal" we may be exceeding not only the dental health "need" as perceived by the public but also the "need" as supported by present research knowledge.

Further, it is ironic that while available knowledge rigorously applied can virtually eliminate dental disease, developing countries, acquiring the ills of urban society, are experiencing rising disease rates with little attention to prevention and with dental treatment available only to the elite.

The second and perhaps more significant aspect worthy of comment is the birth of this program. This was the year the Royal College brought forth its brain child — the Symposium — featuring world class participants. This Symposium represents the combination of a long search for a vehicle to fulfill an obligation. The College has earnestly sought a means of presenting a superior program of material basic to dentistry, its specialties and its scientists. With the assistance of the Canadian Dental Association and The Dental Specialty Sections of the Canadian Dental Association, Colgate-Palmolive Canada and the Canadian Fund for Dental Education, the College has succeeded in its first Symposium. The papers presented in this Journal were ably edited by Dr. Chris Lavelle, Dr. Don Lewis and Dr. Robert Turnbull.

Our interest in children will continue beyond the 31st of December, 1979. So too, hopefully the Royal College will continue what it has started in the International Year of the Child — the R.C.D.C. Symposium.

Dr. W.H. Feasby,
University of Western Ontario

Éditorial

L'ANNÉE DE L'ENFANT

Le neuvième mois de l'Année de l'enfant a été témoin d'un événement important dans le monde dentaire. Pendant deux jours, lors du congrès annuel de l'Association dentaire canadienne qui avait lieu à Québec, le Collège royal des chirurgiens dentistes du Canada a tenu son premier symposium. Le programme comprenait des conférences intéressantes auxquelles tous les congressistes furent invités. Ce programme de conférences fut remarquable par son contenu et par la manière dont il vint à se réaliser.

Au sujet du programme, outre qu'il était bien équilibré, il faisait appel à des savants de renommée mondiale. Le lecteur trouvera des comptes rendus de leurs exposés dans ce numéro. Bien qu'on eût choisi l'enfant pour thème, on ne se limita pas uniquement à la pédodontie et on traita des soins dentaires qu'il faut donner aussi bien aux adultes qu'aux jeunes.

Plusieurs sujets captivèrent l'attention de l'auditoire comme, par exemple: *Comment le dentiste et le patient envisagent-ils chacun la santé dentaire*? ou *Comment pouvons-nous éviter les conflits d'intérêts quand, à la fois, nous examinons le patient, nous lui prescrivons un remède et nous le traitons?*

Par ailleurs, on donna une excellente appréciation des mesures préventives actuelles et on fit la somme des dernières connaissances acquises en étiologie dentaire. Bien entendu, plusieurs réponses suscitèrent de nouvelles questions. Ainsi le Dr Helm démontra que les malocclusions dont souffrent les Danois aujourd'hui, proviennent des dommages que cause la carie dentaire et d'une mastication lâche. Négligeant les facteurs psychosociaux, il a également indiqué que les malocclusions pourraient bien constituer une sérieuse menace à la santé et au bon fonctionnement de l'organisme. Lorsque nous cherchons à appliquer un traitement d'une façon idéale, a-t-il déclaré, il se peut que nous dépassions non seulement les besoins réels de la santé dentaire tels que le public les comprend, mais aussi les besoins que la recherche actuelle reconnaît.

De plus, on constate non sans ironie que, si les connaissances actuelles appliquées de façon rigoureuse peuvent éliminer les maladies dentaires, les pays en voie de développement, tout en acquérant les maux des sociétés urbaines et en voyant leurs taux de maladies s'accroîtrent, accordent peu d'importance à la prévention et dispensent des soins dentaires à l'élite seulement.

La réalisation du symposium mérite, encore plus que le contenu de son programme, d'être soulignée. Cette année marque pour le Collège royal des chirurgiens dentistes du Canada l'aboutissement d'un long projet pour trouver un moyen de tenir un congrès scientifique réunissant des spécialistes de haut renom. Avec l'appui de l'Association dentaire canadienne et des Sections de spécialités de l'Association dentaire canadienne, de Colgate-Palmolive Canada et du Fonds canadien pour l'enseignement dentaire, le Collège royal a fait de son premier symposium une réussite éclatante.

Nous continuerons à nous intéresser aux enfants bien au-delà du 31 décembre 1979. Et nous espérons aussi que le symposium du Collège royal des chirurgiens dentistes du Canada se repètera avec un succès toujours plus grand.

Dr W.H. Feasby

On nous écrit de Sri Lanka . . .

L'École dentaire de l'Université de Peradeniya, à Sri Lanka, espère préparer un test d'aptitudes aux études dentaires à l'intention des étudiants qui désirent s'inscrire au cours de chirurgie dentaire dans notre pays.

Je crois savoir que les articles mentionnés plus bas ont paru dans le numéro 8, volume 45, du Journal de l'Association dentaire canadienne. Malheureusement, je ne suis pas en mesure de me procurer une copie de ce numéro à Sri Lanka. Aussi vous serais-je grandement obligé si vous me faisiez parvenir des copies de ces articles.

Ils seraient utiles pour préparer notre test d'aptitudes.

Ces articles sont les suivants: Teteruck: The history of the dental aptitude test program in Canada (L'histoire du test d'aptitudes aux études dentaires au Canada); Graham et autres: The content and use of the dental aptitude test program (Le contenu du test d'aptitudes aux études dentaires et son utilité); Boyd et autres: Personality testing for dental admissions (Un test de personnalité pour l'admission aux études dentaires); Thompson et autres: Evaluation of the dental aptitude test components as predictors of dental school performance (Evaluation des différentes parties du test d'aptitudes dentaires comme moyens de prévoir le rendement des étudiants dans les écoles dentaires); Ambrose et autres: Admission procedure survey in Canadian Dental Schools (Étude des règles d'admission des écoles dentaires canadiennes); et Boyd et autres: The Dental Aptitude Test — Its application in admissions (Le test d'aptitudes aux études dentaires — comment l'appliquer lors des admissions).

L.C.L. Peiris,
Division de la dentisterie conservatrice,
École dentaire,
Paradeniya,
Sri Lanka.

Note du rédacteur en chef: Nous avons envoyé un exemplaire du Journal de l'Association dentaire canadienne du mois d'août à M. Peiris.

Le Journal de l'Association Dentaire Canadienne est heureux d'offrir cet espace aux lecteurs désireux d'envoyer des "Lettres à la rédaction". Toutes les lettres doivent être signées et la rédactrice en chef se réserve le droit de les raccourcir si le manque d'espace l'impose.

"Que fait-on de la dignité?"

Note du rédacteur en chef: Inquiet au sujet du biais commercial que, selon son avis, l'on fait prendre à l'art dentaire, le Dr Sandy MacGregor, professeur émérite à l'Université de Toronto, a fait part de ses opinions au Journal. Voici un abrégé de ce que pense le Dr MacGregor.

"Que fait-on de la dignité?"

Il a fallu cent ans à la médecine dentaire pour quitter ses modestes débuts sur la chaise du barbier et s'élever à la dignité d'une profession. Cependant, avec les changements rapides qui se produisent aujourd'hui, il faudra peu d'années avant qu'on en vienne à ne plus la considérer comme une profession.

Quand, par exemple, je lis sur des plaques: "ABC Société de gestion dentaire," je me demande si nous ne nous laissons pas entraîner de plus en plus vers le monde des affaires et si notre profession n'est pas en train de perdre son statut.

Aussi quelle costernation fut la mienne lorsque j'ai appris que des dentistes américains s'établissaient dans des magasins à rayons! Pour eux, il semble que nous puissions "nous faire examiner les dents tout en marchandant des bas-culottes."

Et que dire des cartes qu'on envoie aux clients pour leur faire part d'un changement d'adresse? Elles sont dépourvues de décorum professionnel et de dignité. Il semble que nous allions vers une ère de désinvolture où les avis ressemblent à ces cartes de Valentin idiotes des années passées.

On m'a décrit deux de ces cartes récemment. Sur la première, une paire de pinces extrayait une dent de son alvéole et, avec la nouvelle adresse, on pouvait lire: "Nous nous (re)tirons ailleurs !." Sur l'autre carte portée à mon attention, figurait un train rempli de bandelettes et de pansements. J'imagine qu'il se dirigeait vers une nouvelle adresse.

On m'a dit que, légalement, il n'y avait pas de mal dans cette façon de prévenir les patients d'un changement d'adresse. Toutefois, je me demande quelle atteinte on porte, ce faisant, à la dignité de la profession dentaire. Il n'en tient qu'à nous de faire en sorte que le pendule oscille dans la direction opposée.

S.A. MacGregor, DDS, LLD,
Professeur émérite,
Toronto, Ontario.

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300 mg Acetaminophen; 8 mg Codeine Phosphate; 15 mg Caffeine

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TABLETS WITH CODEINE NO. 1

TYLENOL* Tablets with Codeine — Acetaminophen — Codeine — Caffeine

ACTIONS

Acetaminophen is an analgesic and antipyretic; codeine is an analgesic and antitussive.

INDICATIONS

TYLENOL Tablets with Codeine No. 1 is indicated for the relief of mild to moderate pain. Also as an analgesic-antipyretic — antitussive in the symptomatic treatment of colds.

CONTRAINDICATIONS

Hypersensitivity to codeine or acetaminophen.

PRECAUTIONS

Codeine Phosphate

The use of codeine phosphate over a prolonged period may lead to drug dependence. Warn patients against driving or operating machinery if they show impaired mental and/or physical abilities while taking codeine. Caution should be exercised and dosage may need to be reduced when codeine is administered with other drugs which depress the CNS (including alcohol), other narcotic analgesics, phenothiazines, other tranquilizers, sedative-hypnotics, tricyclic antidepressants, and MAO inhibitors. When used postoperatively in sedated or debilitated patients, or in patients with chronic obstructive pulmonary disease, indiscriminate use may precipitate respiratory insufficiency resulting in part from increased viscosity of bronchial secretions and the retention of secretions due to suppression of the cough reflex.

Acetaminophen

Patients who have ingested a single massive overdose of acetaminophen are at risk for hepatotoxicity. Clinical evidence of hepatotoxicity may be delayed up to one week. Close clinical monitoring and serial hepatic enzyme determinations are, therefore, recommended. Acetaminophen toxicity may be enhanced by recent barbiturate ingestion.

ADVERSE EFFECTS

Codeine Phosphate

The most frequently observed adverse reactions to codeine phosphate include lightheadedness, dizziness, sedation, nausea and vomiting. These effects seem to be more prominent in ambulatory than in nonambulatory patients and some of these adverse reactions may be alleviated if the patient lies down. Other adverse effects include euphoria, dysphoria, constipation and pruritus. Respiratory depression is seen in higher dosage.

Acetaminophen

The incidence of gastrointestinal upset is less than after salicylate administration. If a rare hypersensitivity reaction occurs, discontinue the drug. Hypersensitivity is manifested by rash or urticaria. Regular use of acetaminophen has shown to produce a slight increase in prothrombin time in patients receiving oral anticoagulants, but the clinical significance of this effect is not clear.

OVERDOSE

Codeine Phosphate

SYMPTOMS: Codeine phosphate in sufficient overdosage produces narcosis, sometimes preceded by a feeling of exhilaration and followed by convulsions. Nausea and vomiting are usually prominent symptoms. The pupils are contracted and the pulse rate is usually increased. Cardiorespiratory depression accompanied by cyanosis occurs, followed by a fall in body temperature, circulatory collapse, coma and death.

TREATMENT: Maintain a patent airway through the use of an oropharyngeal airway or endotracheal tube. Oxygen should be administered, and respiration should be assisted by artificial respiration. A specific antagonist such as naloxone should be administered immediately. Gastric lavage or induction of emesis with syrup of ipecac should be carried out immediately, followed by administration of activated charcoal. Circulatory collapse and shock may be counteracted by use of dextran, plasma, or concentrated albumin and vasopressor drugs, e.g. norepinephrine. Short-acting barbiturates, e.g. thiopental may be used cautiously to control convulsions. Avoid the use of analeptic drugs.

Acetaminophen

SYMPTOMS: Patients who have ingested 10 g or more of acetaminophen as a single massive overdose are at risk for hepatotoxicity. The clinical course of acetaminophen overdose occurs in a three-phase sequential pattern. The patient may be asymptomatic during the early phases. Therefore, in cases of suspected acetaminophen overdose, begin specific antidotal therapy as soon as possible.

Phase 1: The first phase begins shortly after ingestion of a potentially toxic overdose and lasts for 12 to 24 hours. The patient may manifest signs of gastrointestinal irritability, nausea, vomiting, anorexia, diaphoresis and pallor.

Phase 2: If toxicity ensues, there is a latent phase of 24 to 48 hours but it may last as long as four days. The earlier symptoms abate and the patient may feel well. During this interval, hepatic enzymes, serum bilirubin and prothrombin time begin to rise as hepatic necrosis progresses. Right upper quadrant pain may develop as the liver becomes enlarged and tender. The vast majority of cases do not progress beyond this phase and their subsequent clinical course is characterized by a gradual return of liver function tests to normal.

Phase 3: For the relatively few patients who develop significant hepatic necrosis, the signs and symptoms of the third phase of the clinical course depend on the severity of hepatic damage, and usually occur from three to five days following ingestion. Symptoms may be limited to anorexia, nausea, general malaise and abdominal pain in less severe cases or may progress to confusion, stupor and hepatic necrotic sequelae including jaundice, coagulation defects, hypoglycemia and encephalopathy as well as renal failure and myocardiopathy. Death, when it occurs, is due to hepatic failure.

TREATMENT: Estimate as carefully as possible the quantity of acetaminophen ingested and the time of ingestion. The stomach should be emptied promptly by gastric lavage or by induction of emesis with syrup of ipecac. Activated charcoal will interfere with the absorption of the antidote. If activated charcoal has been administered, lavage before initiating treatment with the antidote. Regardless of the quantity of acetaminophen reported to have been ingested, immediately administer N-acetylcysteine orally if 24 hours or less have elapsed since alleged time of ingestion of acetaminophen. Draw blood for acetaminophen assay, liver function tests, and other clinical laboratory tests. Maintain supportive treatment throughout.

The use of N-acetylcysteine as an antidote in acetaminophen overdose is experimental. More detailed information on the treatment of acetaminophen overdose, including the availability of N-acetylcysteine, the preparation of N-acetylcysteine for administration of an antidote, recommended dosage regimen and acetaminophen assay methods is available from McNeil Laboratories (Canada) Limited, 600 Main St. West, Stouffville, Ontario or a Poison Control Centre.

ADULT DOSAGE

1 or 2 tablets every 4 hours as required.

SUPPLIED

Each round, white tablet, uncoated with slightly beveled edges and imprinted "McNEIL" on one side and "1" on the reverse side contains: 300 mg acetaminophen, 15 mg caffeine, and 8 mg codeine phosphate. Available in bottles of 30 and 100 tablets.

REFERENCES

1. Ivey, K.J., Settree, P., and Gemmell, R.: Comparison of acetaminophen and aspirin on gastric mucosal barrier in man: Correlation with ultrastructural changes. Abstract of a paper presented to the 76th Annual Meeting of the American Gastroenterological Association, San Antonio, Texas, May 17-22, 1975. In: Gastroenterology 68(4 pt.2): A61/918 (Apr.) 1975.
2. Rainsford, K.: The effects of Aspirin and other non-steroid anti-inflammatory/analgesic drugs on gastrointestinal mucus glycoprotein biosynthesis in vivo: Relationship to ulcerogenic actions; Biochemical Pharmacology 27(6): 877-885, March, 1978.
3. Ivey, K.J., et al.: Effect of paracetamol on gastric mucosa; British Med. J.; 1, 1586-1588, 1978.
4. Hoon, J.R.: Bleeding Gastritis Induced by Long-Term Release Aspirin; Journal of the American Medical Association, Vol. 229, Aug., 1974.

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Faculties/ Facultés

Newly-elected officers of the **Executive Council of the Association of Canadian Faculties of Dentistry/l'Association des facultés dentaires du Canada** include: **Dr. D.V. Chaytor,** president (Dalhousie University); **Dr. R. Barolet,** president-elect (Université Laval); **Dr. G. Thompson,** vice president (University of Alberta); **Dr. B.K. Arora,** treasurer (University of Saskatchewan); **Dr. G.W. Myers,** executive director (University of Alberta); **Dr. P. Noble,** chairman — research (McGill University); **Dr. M. Boyd,** chairman — education (University of British Columbia); **Dr. A. Schwartz,** member at large (University of Manitoba); and **Dr. D. Yeo,** CDA representative, Council on Education (University of British Columbia). The central office of the Association is Room 5059, Dentistry-Pharmacy Building, University of Alberta, Edmonton, Alberta T6G 2H7.

Members of the Research Committee are: Dr. P. Noble, chairman, (McGill). ACFD members are: Dr. R.E. Jordan (U.W.O.); and Dr. A. Lowe (U.B.C.). CADR members include Dr. J. Tonzetich (U.B.C.); Dr. D. Carmichael (U. of A.); and Dr. C. Dawes (University of Manitoba).

The Education Committee is chaired by Dr. M. Boyd. Members include Dr. C. Dixter (McGill); Dr. J.B. Houston (U. of T.); Dr. A. Ruprecht (University of Saskatchewan); Dr. L. Kline (U. of A.); and Ms. G.M. Butt (Dalhousie). The Council on Education representative is Dr. K.C. Bentley (McGill).

Letters

Dignity gone?

Editor's note: *Concerned about what he perceives to be the commercial direction in which dentistry is headed, Dr. Sandy MacGregor, professor Emeritus, Toronto, Ontario, addressed his opinions to the Journal. The following is an abridged version of the points made by Dr. MacGregor.*

"Where has all the dignity gone?"

It has taken 100 years to elevate the profession of dentistry from its humble beginnings in the barber chair, but with rapid changes taking place today, it will not take many years to reach a point where dentistry might not be regarded as a profession any more.

Encountering nameplates such as 'ABC Dental Management Company,' I wonder if we are not drifting more and more toward the business world and losing our status as a profession.

I have been appalled to hear of American dentists setting up department store offices where the approach seems to be "get your teeth checked when you shop for pantie hose."

Change of address announcement cards being sent out to patients also show a lack of professional decorum and dignity. We seem to have drifted into an age of flippancy where notices are similar to silly valentine cards of years passed.

Two such cards were described to me recently. One showed a pair of forceps removing a tooth from a socket with the caption "We're pulling out" and the new address listed.

The other card recently drawn to my attention featured a train loaded down with arches and bands on the way, I suppose, to a new address.

I am told that legally there is nothing wrong with this approach to informing patients about a change of address, but I wonder how much harm such an approach does to the dignity of the profession of dentistry. The pendulum will only swing in the opposite direction if we are prepared to give it a push.

S.A. MacGregor, DDS, LLD
Professor Emeritus
Toronto, Ontario.

Journal could help in testing

The Dental School of the University of Peradeniya, Sri Lanka, is hoping to plan a Dental Aptitude Test Program for students wishing to enter the Dental Surgery course in our country.

I understand the following articles appeared in vol. 45, no. 8 of the Journal of the Canadian Dental Association. Unfortunately I am not in a position to get a copy of this Journal in Sri Lanka and would be much obliged if you could send me reprints of these articles.

These would be useful in planning our program.

The articles are: Teteruck: The history of the dental aptitude test program in Canada; Graham et al: The content and use of the dental aptitude test program; Boyd et al: Personality testing for dental admissions; Thompson et al: Evaluation of the dental aptitude test components as predictors of dental school performance; Ambrose et al: Admission procedure survey in Canadian Dental Schools; and Boyd et al: The Dental Aptitude Test — Its application in admissions.

L.C.L. Peiris,
Division of Conservative Dentistry,
Dental School,
Peradeniya,
Sri Lanka.

Editor's Note: The August issue of the Journal of the Canadian Dental Association was forwarded to Mr. Peiris.

FLUORINSE*

Sodium fluoride rinse

Composition: Contains sodium fluoride in a pleasantly flavoured neutral pH liquid. Contains alcohol (3% by volume).

Indications: Dental caries prophylactic.

Precautions: Limited to topical use in the mouth only. DO NOT SWALLOW. Excessive ingestion may cause nausea and excessive use may cause dental fluorosis.

Contraindications: Sodium-free diets.

Dosage and Administration: 1 to 2 teaspoons (5 to 10 ml) of Fluorinse is swished around vigorously in the mouth for approximately 1 minute and then expectorated. Recommended at bedtime, after brushing and flossing teeth thoroughly. For maximum benefit, patient should not eat or drink for a period of 30 minutes after rinsing.

How supplied: Fluorinse is available in 455 ml plastic bottles with child-resistant caps.

Weekly Rinse	Daily Rinse	Weekly Rinse
Cinnamon (red) 0.2% sodium fluoride	Ice Mint (blue) 0.05% sodium fluoride	Mint (green) 0.2% sodium fluoride

Caution: Keep out of reach of children.

FLOZENGES*

Sodium fluoride lozenges

Composition: Contains sodium fluoride in lozenge form. Contains no sugar, saccharin or cyclamate.

Indications: To help protect against dental caries, particularly for children through age 14.

Precautions: If this product is used in an area where the drinking water has a natural fluorine content in excess of 0.7 parts of fluoride ion per million parts of water, or is artificially fluoridated, fluorosis of the tooth enamel may result.

Contraindications: Sodium-free diets.

Dosage and Administration: FOR CHILDREN OVER 3 YEARS OF AGE: 1 lozenge daily, preferably at bedtime after brushing and flossing teeth thoroughly. Flozenge is slowly sucked and dissolved in the mouth. FOR CHILDREN 2 TO 3 YEARS OF AGE. 1 lozenge every other day, as above.

Fluoride in drinking water	Recommended supplement Children 2-3	Children 3 & over
0-0.3 ppm	0.5 mg	1.0 mg
0.3-0.7 ppm	0.25 mg	0.5 mg

How supplied: Flozenges are available in plastic, child-resistant containers of 120 lozenges.

Two flavours:	Orange	Strawberry
	0.5 mg of fluoride ion	1.0 mg. of fluoride ion

Caution: Keep out of reach of children. Exceeding recommended dosage over a prolonged period of time may be harmful.

References

† According to the International Workshop on Fluorides and Dental Caries Reductions, School of Dentistry, University of Maryland, 1974; "...concentration of recommendable rinsing solutions ranges from 0.025% to 0.2%." (Page 140). Many available rinses do not meet this standard.

1. Confirmed by world-wide dental authorities (International Workshop, Maryland, 1974).
2. Stephen KW, Campbell D: Caries reduction and cost benefit after 3 years of sucking fluoride tablets daily at school. **Brit. dent. J.** April 1978, 144-202.

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Only in drugstores. Full information on request.

Now you can bring fluoride therapy home to your patients.

New Fluorinse – therapeutically effective fluoride treatment for home use.†

From now on, your patients can continue an effective caries prevention program between appointments.[1] Fluorinse is especially valuable for:

- Children who are decay prone or who have insufficient fluoride intake.
- Caries rampant adults.
- Adults or children with poor dental hygiene habits or without access to regular dental care.
- Orthodontic and periodontic patients.

A choice of flavours and strengths.

Fluorinse is available in 0.2% Cinnamon (red) for weekly use; 0.05% Ice Mint (blue) for daily use; and 0.2% Mint (green) for weekly use.

For children who do not like to rinse, Flozenges are a good alternative.

Flozenges are pleasant to take, and effectively reduce the incidence of caries.[2] They are available in two flavours: Orange (0.5 mg. of fluoride ion) and Strawberry (1 mg of fluoride ion).

There are 32 good reasons for recommending

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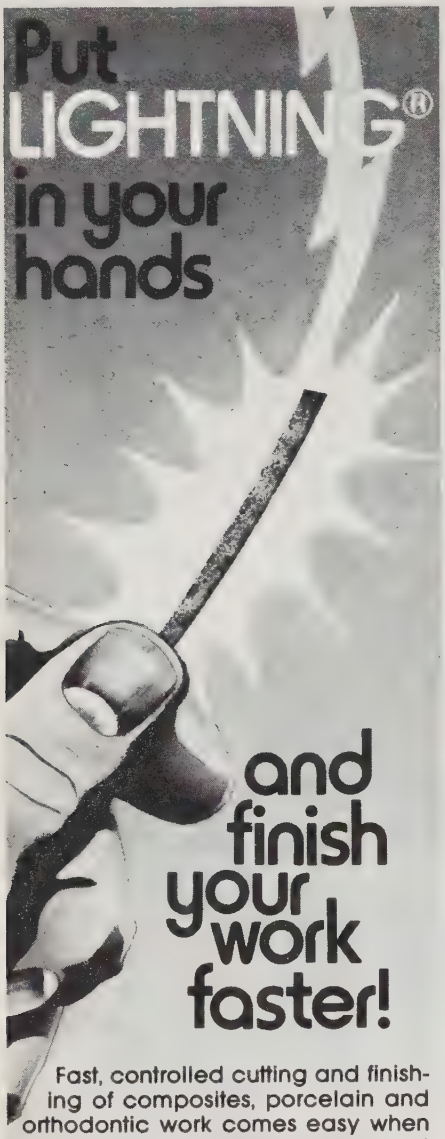
In the News



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Dentist next P.E.I. Lieutenant-Governor

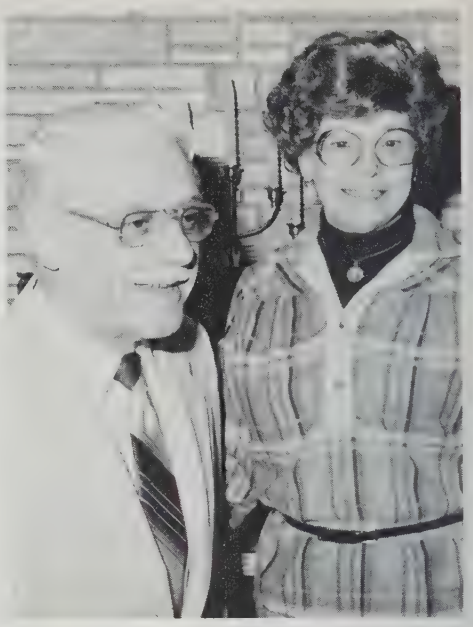
Prince Edward Island dentist, Dr. J. Aubin Doiron was recently named Lieutenant-Governor of that province.

A past president of the Canadian Dental Association, Dr. Doiron is the first Acadian from Summerside, PEI to serve in the vice regal position.

Dr. Doiron was born in North Rustico, PEI, June 10, 1922. He attended Stella Maris School and Saint-Anne's College. He graduated with a BA in 1946.

A 1951 graduate from the University of Montreal Faculty of Dentistry, Dr. Doiron has practised dentistry in Summerside since that date.

He was a representative on the CDA Board of Governors for three terms.



Dr. Doiron and Mrs. Doiron

How did Dr. Doiron feel when Prime Minister Joe Clark offered him the position? "I was in Seventh Heaven," he is quoted as saying in local newspapers.

Dr. Doiron and his wife Bernice have seven children ranging in age from 15 to 29.

CDA statement on disaster plans

The Canadian Dental Association recently released a policy statement on 'dental tasking for hospital disaster plans.'

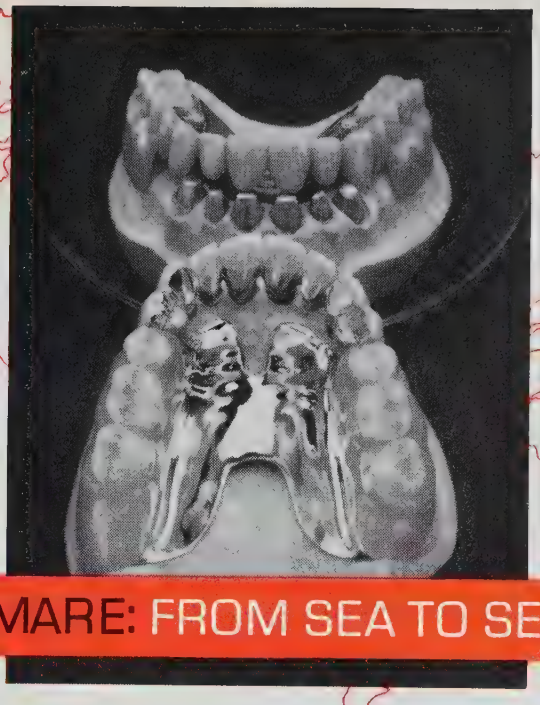
The statement declares that in the event of a disaster requiring the mobilization of the entire medical and para-medical resources of a community, the disaster plan of the hospital or hospitals concerned will be put into effect.

In the assignment of tasks to the medical and dental staff of the institution, certain areas of responsibility may be competently carried out by dentists under the general supervision of the disaster site physician. These areas of responsibility include setting simple fractures, suturing, administering initial burn treatment, initiating I.V. procedures, assisting the primary surgeon, assessing and treating maxillo-facial trauma and administering cardio-pulmonary resuscitation.

CDA's policy statement indicates further that oral surgeons may be tasked with any of these procedures and, because of their higher degree of expertise in life support and anaesthesia procedures, they may also be utilized in resuscitation areas.

The statement was released to the executive director of the Association of Canadian Faculties of Dentistry (ACFD), the provincial directors of Emergency Health Services, provincial dental licensing bodies, Canadian Council on Hospital Accreditation, provincial registrars, the secretary general of the Canadian Medical Association and the director general of Dental Services, Department of National Defence.

There's a Nobilium laboratory near you



A MARI USQUE AD MARE: FROM SEA TO SEA

Wherever you practice there is a Nobilium laboratory nearby . . . ready to process your partials with the "aristocrat of chromium alloys" . . . partials that satisfy every patient desire for dependable fit, functional service, oral comfort and lifelike aesthetics. Here is the list of skilled laboratories from British Columbia to Nova Scotia equipped with the latest Nobilium equipment and materials and dedicated to serve your every requirement. Entrust your prescriptions to them with confidence.

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250 Lawrence Avenue West

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1366 Bathurst Street

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336 - 6th Ave. North

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94 Blainville Quest

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Julien-Ste. Jean Dental Lab.
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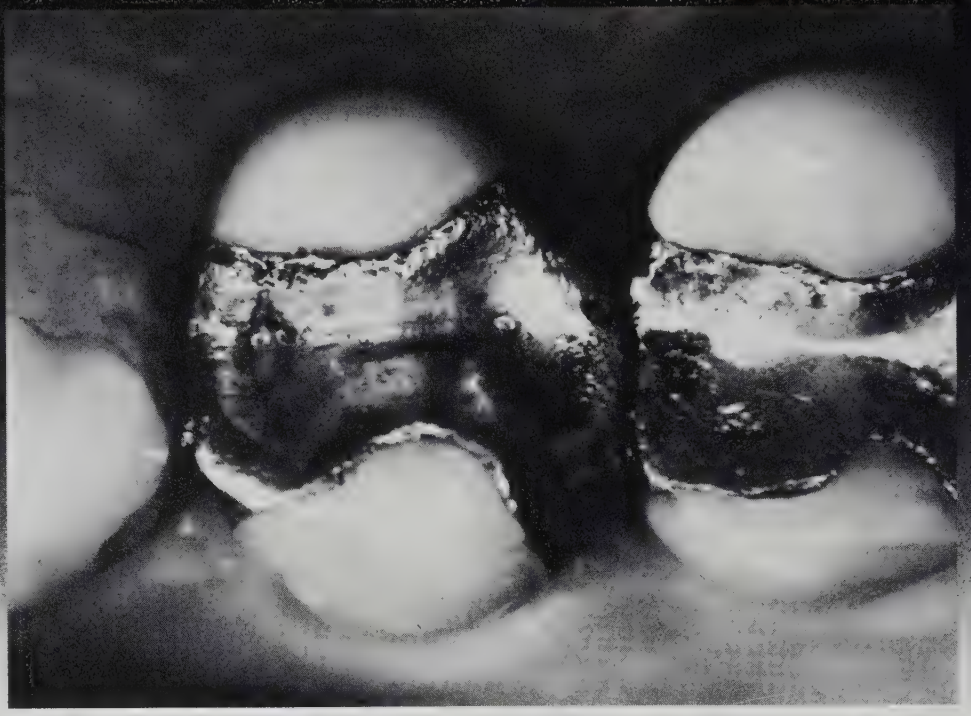

Photo of conventional alloy restorations of under 3-years, showing extensive marginal corrosion.

Shofu Indiloy™ solves a degrading problem.

Indiloy is chemically unique and physically tough. The *only* alloy enriched with indium and copper, it's virtually free of the undesirable, easily corrodible gamma 2 phase. In addition to low creep and high compressive strength, Indiloy expands upon setting, just what you expect of a premium alloy.

Indiloy's outstanding asset as a restorative, however, is its easy handling. So you can routinely create restorations with predictably superb marginal integrity. Indiloy costs only pennies more per fill, but it does much more, like solving a degrading problem. That makes Indiloy a real bargain, on sale now at your dealer in capsule, tablet and powder forms.

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Examiner installed

Dr. Gerald Z. Wright, chairman, Department of Paediatric and Community Dentistry, University of Western Ontario, was recently installed as an examining member of the American Board of Pedodontics. Dr. Wright will serve a seven year term on the seven-member Board.

The function of the American Board of Pedodontics is to determine, by examination, the competence of specialists who apply for certification as diplomates in pedodontics.

Dentists with five years specialty experience, including completion of an advanced two-year program in pedodontics approved by the Council on Dental Education of the American Dental Association, may apply to take the examinations.

The candidate is certified as a diplomate of the Board after successfully completing the written and oral examinations and passing the case history and office site visit portions of the exams.

Ottawa Fair

The Ottawa Dental Society in Canada's capital city, prides itself on being active in community life. Most recently, under the direction of the Society's Public Relations chairman, Dr. Art Conn, the Society set up a booth at the Health and Fitness Fair sponsored by the Ottawa Jewish Community Centre. The fair ran from October 28 to 30.

Using props and audio visual material from local laboratories and dental offices, the Society's booth had information dealing with fluoridation, flossing, decay, brushing and tooth pastes as well as other material.

Kids asking questions about cleaning teeth and orthodontics were the booth's most frequent visitors, said Dr. Richard Cooper, ODS president.

Dr. Cooper did not consider the fair a big success in terms of the number of people who attended but he did feel it was a good opportunity for dentists, auxiliaries and laboratories in Ottawa's dental community to get together and work on a common project. Sponsored by ODS, the booth was presented as a project of the Ottawa dental community.

Over the three days, the booth was staffed by Dr. Conn, Dr. Cooper, Diane Langevin, Kim Hinton, Sandra Lee and Dr. A. Shapiro.

Dangers of "laughing gas" outlined by ADA

Preliminary results from an American Dental Association study indicate dentists and auxiliaries could develop kidney, liver or neurological problems from repeated exposure to nitrous oxide.

ADA spokesmen made the statement at the Association's Annual Convention in Dallas, Texas recently.

Dr. William Greenfield of New York City is reported as saying "the report offered evidence suggesting an increase of specific health problems in male and female dental personnel exposed to trace inhalation of anesthetic-sedatives, compared to those who were not."

Increase in spontaneous abortions and birth defects were also shown in the preliminary results of the study.

According to Dr. Greenfield, "significant increases among heavily exposed dentists and female personnel were noted relative to liver, kidney and neurologic diseases."

Laughing gas was also indicated as presenting a reproductive hazard with an increase in the incidence of spontaneous abortion in the wives of heavily exposed male dentists as well as female personnel.

The final analysis of data has not yet been completed. The study was based on questionnaires answered by more than 64,000 dentists and auxiliaries polled by the American Dental Association in the United States.

The publication of the National Institute of Occupational Safety and Health in the United States recently released an article outlining the health hazards associated with nitrous oxide.

Reported health hazards include a 78 per cent increase in the rate of spontaneous miscarriage in the wives of male dentists and a 156 per cent increase in the incidence of liver disease in dentists.

Control measures suggested by the American health body include using a scavenging mask; venting the patient suction machine to a safe disposable site outside the building; minimizing speech by the patient during dental procedures; conducting regular preventive maintenance procedures for anesthetic equipment; testing frequently for equipment leakage; using an air sweep fan to dilute concentrations of anesthetic inhaled by personnel; monitoring N_2O in the breathing zone of the dentist.

According to an abstract of the original article, published in the Wisconsin Dental Association Journal, the preventive measures are easily performed by the dentist. They are also compatible with safe practices in dental inhalation analgesia and anesthesia and are effective in reducing gas concentrations inhaled by personnel by as much as 98 per cent.

Endodontists host general session

Dr. Cal Torneck and Dr. Norman Levine both of Toronto, Ontario were the key note speakers at the general session of the Annual Meeting of the Canadian Academy of Endodontics recently. They discussed traumatic injuries to permanent and primary dentition. Dr. Michael Heuer, director of Endodontics at Northwestern University Dental School in Chicago presented a paper "Current Concepts of Root Canal Instruments."

It was the Academy's Fifteenth Annual Meeting, held in conjunction with the Canadian Dental Association Convention in Quebec City.

The Canadian Academy of Endodontists was founded in 1964 in Toronto. Two years later, the area of endodontics was recognized as a specialty by the Canadian Dental Association. Since then, all provinces have certified qualified dentists as endodontists. There are currently over 50 endodontists in Canada.

RCMP asks for help

The Peace River Detachment of the Royal Canadian Mounted Police has asked for the assistance of the Journal of the Canadian Dental Association in identifying an unidentified male body found floating in the Peace River. The body was badly decomposed but the deceased had had extensive dental work done.

A complete visual and radiological examination was conducted on the jaws. The post mortem dental report indicated the oral health of the deceased had deteriorated over a period of time. Periapical lesions were present and carious lesions were generalized. The deceased suffered from a moderate to severe periodontal condition.

The most recent dental treatment received was probably an extraction of tooth number 41, possibly on an emergency basis.

Two characteristics of special note were the plastic bridge from teeth numbers 11 to 22 and the three quarter gold crown with the "buccal bar" on tooth number 34.

The deceased is thought to have been in his forties, from 6'3" to 6'5" in height and of slim build and greying hair. He was found wearing a light brown sheep skin jacket, plaid shirt, blue turtle neck, brown plaid pants, orange wool socks and heavy brown leather workboots.

Dentists with information are requested to contact Corporal C.R.E. Bothe, 'K' Division, RCMP Peace River Detachment, Box 429, Peace River, Alberta T0H 2X0.

Fluoride cuts tooth decay

Water fluoridation in Toronto, Ontario and an effective dental health education program have dramatically cut the rate of tooth decay in that city, according to former director of Metro's Dental Services, Dr. J. McGaughey.

A 1978 report from the City of Toronto's Department of Public Health shows that in 1964, the first full year of fluoridation, 21.5 per cent of five year old children born in the Metropolitan area had lost teeth because of dental decay. In 1978 reports indicated that per centage had dropped significantly to 2.7.

The report states that in 1964, 32.8 per cent of children studied were free of dental decay while the number increased to 64.8 per cent in 1978. The mean number of decayed teeth per child and teeth prematurely missing or restored, had dropped from 3.5 to 1.2 during the same period.

The Metropolitan Toronto water supply was fluoride-adjusted to the level of one part per million in September, 1963. The 1978 total fluoridation cost was 7.3 cents a year per person. More than two million people in Toronto and suburban municipalities use the water.

The 1978 report shows that among 13 year olds born in Toronto, 33.2 per cent had lost permanent teeth due to decay by 1964 and only 3.7 per cent showed this loss in 1978.

According to Dr. McGaughey, the trend of improvement gives adequate proof that the most effective means of reducing the incidence of dental decay and of improving overall dental health, is through the use of fluoridated water supplemented with preventive care programs.

Halifax in 1980

Plans are underway for the 1980 CDA Convention in Halifax, Nova Scotia. Co chairmen of the event are Dr. John Christie and Dr. Terry Ingham. The theme of the Convention is "Learn and Relax in Halifax."

Committee members include Dr. David Precious, scientific chairman; Dr. Carl Dexter, protocol; Dr. Art Ervin, table clinics; Dr. George Clark, accommodation; Dr. Joe Elias, exhibitors; Dr. Phil Amys, marketing; Suzanne Mader, dental assistants; Kim McGrail, dental hygienists; Dr. Ralph Conter and Dr. Elaine Gordon, social; Jean Dexter, spouses' program; and Dr. Cliff Murray, transportation.

Convention dates are July 13 to 16 and most events will be held in the Dalhousie Arts Centre. Dalhousie's Continuing Education in Dentistry Department is looking after registration services and the clinical program.

Further information about the Convention will appear in the upcoming issues of the Journal.

Societies/ Sociétés

Waterloo-Wellington Dental Society . . . Kitchener dentist, Dr. W. Hugh Jack, was recently elected president of the Waterloo-Wellington Dental Society. The Society serves 150 members in the Kitchener-Waterloo area. Past president is Dr. John F. Wahl. Other officers include: Dr. Robert Hustwitt, president-elect (Kitchener); Dr. David McKenzie, secretary (New Hamburg); and Dr. Ronald Hebden of Guelph. Dr. John Wallitschek of Kitchener will be in charge of programs for 1979-1980. Representatives to the ODA Board of Governors include Dr. Bruce Jackson and Dr. Ron Weiler (Kitchener) and Dr. Harry Hersh (Cambridge). Dr. Roderick Jack (Kitchener) will be the representative to the Royal College of Dental Surgeons.

Canadian Association of Oral and Maxillofacial Surgeons . . . executive officers include: Dr. J.H. Gryfe, president; Dr. M.E. Mickleborough, president-elect; Dr. G.C. White, secretary; Dr. R.E. Warren, treasurer; Dr. G. Maranda, past president; and Dr. S.J. Levitz, convention chairman (1980).

Canadian Association of Orthodontists . . . Dr. Joseph Schacter of Saskatoon received an Honorary Membership in the Association at the 1980 Annual Meeting held in Quebec in September. Dr. Schacter is a past president of the Saskatchewan College of Dental Surgeons. He practised in Saskatoon since graduation in 1937, except for a period of time in the dental corps during the War, until his retirement. A Life Member of the Canadian Dental Association, Dr. Schacter is also a Diplomate of the American Association of Orthodontists . . .

The following members were elected to office for 1979-80: Dr. M. Cripton, president (Moncton, New Brunswick); Dr. R. Haryett, president-elect (Edmonton, Alberta); and Dr. J.L. Ares, secretary treasurer (Edmonton, Alberta). The 1980 Convention of the Canadian Association of Orthodontists will be held in Halifax, Nova Scotia July 13 to 16. Details are available from Dr. W. Barro, 599 Portland Street, Dartmouth, Nova Scotia B2W 3M5 or, from Dr. J.L. Ares, Suite 500, 10080 Jasper Avenue, Edmonton, Alberta T5J 1V9.

New Brunswick Dental Society . . . elected a new executive at the annual meeting in Edmundston. President is Dr. G.L. Daigle (Edmundston); president-elect is Dr. M. Cripton (Moncton); and past president is Dr. D.L. Britt (Saint John). Public relations representative with the Society, Dr. E.G. Schroeter announced that further progress was made at the meeting in the development of peer review process by the adoption of a Bylaw to establish terms of reference for the Peer Review Committee. A motion was also passed in support of the Department of Health's (Dental Division) fluoride rinse program for grade one pupils. The Society also agreed to establish a prize to be awarded annually to a New Brunswick student attending the University of Montreal Dental School.

Dr. G.L. Daigle

College of Dental Surgeons of British Columbia . . . executive committee has appointed Dr. John Silver, deputy treasurer of the College.

Canadian Academy of Endodontists . . .executive elected at the Academy's annual meeting in Quebec City last September includes: Dr. Stephan Brayton, president (Halifax); Dr. Bruce Burns, president-elect (Islington); Dr. Joel Edelson, treasurer (Toronto); Dr. Michael Sherman, secretary (Hamilton); and Dr. John Phillips, past president (Ottawa).

Alberta Dental Assistants' Association . . . executive: Louise Crowhurst, president (Edmonton); Cathy Couchman, president-elect (Edmonton); Melanie Bouchand, secretary (Edmonton); Carolyn Boylan, certification chairman (Medicine Hat); Jane McDonald, education chairman (Edmonton); Heather Wheeler, Bulletin editor (Calgary); and Ivy Nummi, national certification representative (Edmonton).

Send news of your local or national society to the Journal.

CPHA releases fluoride report

A recently released report from the Canadian Public Health Association, "Criteria Document in Support of a Drinking Water Standard for Fluoride — Canada" states that although studies have shown fluoride is mutagenic in some organisms, "the variable results with respect to effective doses and species sensitivity make extrapolation to humans difficult and point to the need for further research."

That statement was based on the results of research studies consulted up to the end of 1977 that were used as the basis of the CPHA report.

In a conversation with Dr. Jack Hann of the University of British Columbia and a member of the CPHA Advisory Committee, Lloyd Bowen, CDA's fluoridation officer, learned that more recent studies have been conducted and those published in 1979 appear to refute research conclusions which had indicated mutagenic change in animal cells as a result of exposure to varying concentrations of fluoride solutions.

According to Dr. Hann, studies reviewed in the course of preparing the CPHA report included animal studies in which investigators had attempted to demonstrate mutagenic change in animal cells subjected to varying levels of sodium fluoride solution. These levels ranged from one to 200 mg/L.

The studies of A.H. Mohamed and his co-investigators were looked at and the Advisory Committee expressed the opinion that the high levels of fluoride affecting animal cells could not be expected to be reached in human serum or plasma. The Committee emphasized findings in these animal studies should not be extrapolated to similar changes in human cells.

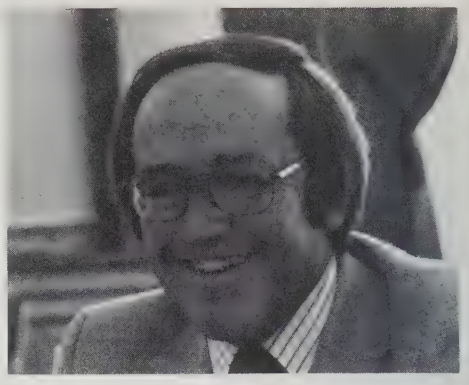
In 1978, Dr. Kenneth S. Brown of the National Institute of Dental Research in the United States reported to the International Association for Dental Research that in a series of experiments using mice, yeast and bacteria, ingested fluoride did not alter chromosome structure or induce genetic mutations.

The conclusion then was "that fluoride does not alter chromosome structure and is not mutagenic according to the results of either double-blind animal tests or a system of microbial mutagenesis assay."

As recently as this year, a group of investigators at the National Institute of Health, Bethesda, Maryland, lead by E.R. Martin and including Dr. Brown, attempted to reproduce the original studies citing the possibility of fluoride as a mutagenic (see A.H. Mohamed, "Induced recessive lethals in second chromosomes of Drosophila Melanogaster by hydrogen fluoride." In "Proceedings of the Second International Clean Air Congress, 1971.) but found no evidence of mutagenic change when animal cells were exposed to high or low levels of sodium fluoride.

Neither is there acceptable evidence that fluoride in drinking water is carcinogenic to humans, says the CPHA report. "Claims that it is were based on studies in which there were deficiencies in both data handling and statistical analysis."

Members of the Canadian Public Health Association Advisory Committee on Fluoride in Drinking Water include Dr. S. Ramamoorthy, CPHA, project director; Dr. Don Lewis, University of Toronto; Dr. H. Jack Hann, University of British Columbia; Dr. Denis Boutin, St.-Basil Legrand, Québec; and Dr. James Robinson, University of British Columbia.



Dr. Robert Hicks

B.C. Board rep

The Council of the College of Dental Surgeons' British Columbia, has made new appointments to the Canadian Dental Association Board of Governors for 1980.

The three B.C. delegates are Dr. Robert Hicks, Dr. Ted Ramage and Dr. Len Burt.

Dr. Hicks will replace Dr. W.J. Froese on CDA's Executive Council. Dr. Froese resigned from this post and is now in a graduate program in Oregon.

Dr. Hicks is a past president of the B.C. College of Dental Surgeons and a former member of CDA Executive Council. Dr. Ramage is the current College president and Dr. Burt is in his second term as one of two College vice presidents.

College exams

Part I (Basic Sciences) Examinations' leading to Fellowship in the Royal College of Dentists of Canada will be held Monday, June 16, 1980, in regional centres across Canada.

Applications for these exams, with a $100 fee, must be received by the Royal College office by January 15, 1980. The address is Suite 614, Medical Arts Building, 170 St. George Street, Toronto, Ontario M5R 2M8.

Application forms for the Part I examinations and further information are available from the secretary-registrar-treasurer, Dr. J.E. Speck at the above address.

Tax proposal objections

Dentists from across Canada have protested the Federal Government's reintroduction of certain tax amendments recently. The Conservative Government Bill C-17 varies little from the former Liberal Bill C-37 as it dealt with small business tax rates.

Earlier this year, the Canadian Dental Association presented a brief to the Senate Committee on Banking, Trade and Commerce calling the Liberal proposals concerning the small business corporate tax deduction "structurally unsound and administratively unworkable."

At that time the Senate Committee responded favorably to CDA's presentation and noted that in singling out dentists, lawyers, medical doctors and accountants as professionals who do not qualify for the small business tax deduction, Bill C-37 was an "arbitrary and discriminatory" policy.

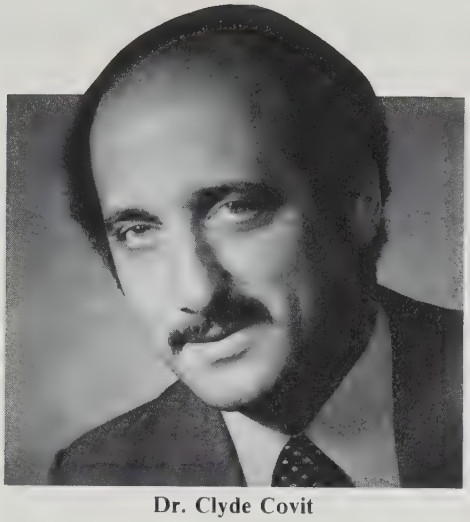
Dr. Clyde Covit, CDA's president, was recently in contact with John Crosbie, Minister of Finance.

The Minister has announced details of modifications to the tax changes proposed by the previous government regarding incorporated Canadian small businesses.

Under the proposals introduced in the November, 1978 Budget, the benefits of the special corporate tax rate on small business would have been denied to three categories of business income: professional income, income from certain personal services, and income from the provision of certain management and other administrative services.

These types of business income would have been taxed at the normal rate of corporate tax of between 46 and 51 per cent rather than at the special 25 per cent rate for small business.

Currently, Mr. Crosbie is suggesting a new small business tax rate of 33 1/3 per cent be introduced for any



Dr. Clyde Covit

Canadian—controlled private company in the three categories. Mr. Crosbie has expanded the professional groups that will be affected from dentists, doctors, lawyers and accountants to include veterinarians and chiropractors.

While Dr. Covit recognizes the fact that the Government has altered its original position somewhat from the "completely unacceptable stance taken by the previous Government" his hope is that it "will continue to move in a timely and reasoned manner to remove the continuing discriminatory and arbitrary problems respecting small business deductions."

"What individual dentists must now do," said Dr. Covit, "is write to their Members of Parliament expressing concern that tax measures aimed at so narrow a selection of professionals are being considered by the Government."

Meanwhile, the Canadian Dental Association has been approached by the Registrar of the Senate for comments on Mr. Crosbie's proposals. On behalf of its members in Canada, CDA is studying Bill C-17 and will submit an updated version of its original brief to the Senate Committee on Banking, Trade and Commerce.

While Mr. Crosbie has made some modifications in Bill C-17 concerning the rate of taxation, Dr. Covit is convinced that the arbitrary and discriminatory aspects of the Bill need to be addressed further.

CDA Manual distributed

Since September, when the Canadian Dental Association Board of Governors agreed that the "CDA Policies on Prepaid Dental Plans and Guide on How to Complete Dental Claim Forms" should be distributed to dentists across Canada, requests have been received from all provinces.

Although the Manual is not yet printed, advance copies have been distributed to corporate members and the consensus is that it is a much-needed comprehensive set of guidelines on pre paid dental plans that will meet an overwhelming demand for standardization of methods.

The Manual will be distributed to CDA members with the permission of the corporate members and it will also be available on request to individual dentists in Ontario and Quebec.

The manual is expected to be released early in 1980.

Addition open 1980

The Dalhousie University School of Dentistry will open its new addition by the end of 1980 if construction continues on schedule. The target date for completion is December 31, 1980.

The added space will more than double the school's capacity to enrol future dentists and dental hygienists. Post-graduate training programs will also be expanded with the opening of the new building.

It is predicted that with the increased number of graduates in the dental health care field, facilities in more remote and rural areas of Nova Scotia and other Maritime provinces will improve.

Refugees will be screened for Hepatitis B virus

The Canadian Dental Association lobby on behalf of dentists across the country for the screening of Indo-Chinese refugees arriving in Canada has met with success.

"We have been notified by the Department of Health and Welfare that the Minister has made a decision to screen all Indo-Chinese refugees for Hepatitis B and give the test results to the respective Departments of Health," said Hubert Drouin, CDA's executive director in a recent communication with the chief executive officers of all corporate members.

"It is also anticipated refugees already in Canada will be contacted by the Medical Officers of Health and asked to be tested for Hepatitis B," added Mr. Drouin.

Screening of new arrivals will be conducted at two ports of entry — in Quebec and Alberta. Information from blood tests to identify the Hepatitis B carriers will be forwarded to provincial Ministers of Health and subsequently to local Medical Officers of Health. When an Indo-Chinese emigré requests dental treatment, dentists are asked to call local Departments of Health to determine the positive or negative status of the patient. If the patient is positive, he is referred to a hospital dental clinic or, the dentist may carry out the work using prescribed precautions and sterilization procedures.

If the department has no record of the patient's status, he is asked to take a blood test and if emergency treatment is required he is referred to a hospital clinic where stringent sterilization procedures are observed.

The whole screening program is conducted by the Department of National Defence at no expense to the patients, dentists or health bodies involved.

Dr. James Main, an oral pathologist at the University of Toronto, first brought the danger of Hepatitis B infection of dentists and dental office personnel to CDA's attention in September, at the height of the immigration of Vietnamese refugees into this country. At that time, Dr. Main cautioned that dentists were particularly susceptible to the virus because it is secreted through blood and saliva. (The matter is particularly important in relationship to the Vietnamese refugees because approximately 14 per cent of Indo-Chinese are virus carriers compared to less than one per cent of Canadians.)

Following the initial request from the Canadian Dental Association that the Federal Government insist on full screening of all Vietnamese refugees, Health and Welfare Minister David Crombie convened a meeting of international experts September 26 in Ottawa. CDA's representative was Dr. Main.

Recommendations from that meeting are: (1) all refugees should be tested to see if they are carriers prior to receiving dental care; (2) where emergency dental treatment is required, it should be assumed all refugees are Hepatitis B virus carriers and treatment should be provided only under conditions of full surgical asepsis; (3) refugees found to be Hepatitis B negative may be treated in the customary manner without any special attention; (4) Hepatitis B carriers should only be treated under conditions of full surgical asepsis (i.e. gowning, capping, gloving and masking of dentist and assisting personnel; all equipment and protective clothing must be sterilized before being washed; all working surfaces, floors and dental equipment must be sterilized by swabbing with activated glutaraldehyde (or another acceptable agent); avoid use of equipment causing aerosol such as turbine drills and ultrasonic scalers; treatment of Hepatitis B carriers is to be done at the end of the working day; (5) Canadian dentists are encouraged to determine their own antibodies status so that dentists immune to Hepatitis B virus can be identified; (6) provincial governments are requested to establish one special dental unit for the treatment of Hepatitis B virus carriers in each major population centre.

Ontario bursaries

Bursaries have been awarded to 65 dental and medical students to practise in officially designated underserviced areas of Ontario, Health Minister Dennis Timbrell told a Chamber of Commerce group recently in Thunder Bay.

Bursaries, offered to dental and medical students during their last two undergraduate years in exchange for a promise to practice in areas of Northern Ontario, have been increased from $3,000 to $5,000.

The incentives are part of the province's Underserviced Area Program which designates as 'underserviced' any area in Ontario having dental and medical services that do not meet the demands of the population.

The bursaries are financed by the Ministry of Northern Affairs while a grant system, available to physicians who agree to practise in underserviced areas, is financed by the Ministry of Health. These tax-free grants offered over four years to physicians have been doubled from $20,000 to $40,000.

Currently 75 dentists and 275 physicians are involved in the Underserviced Area Program in the province.

Les dentistes protest le Bill C-17

Les dentistes de tous les coins du Canada ont protesté contre la décision récente du gouvernement fédéral de présenter un nouveau projet de loi visant à amender certaines mesures fiscales. Le Bill C-17 du gouvernement conservateur est très semblable au Bill C-37 de l'ancien gouvernement libéral pour ce qui est des déductions fiscales applicables aux petites entreprises.

Plus tôt cette année, l'Association Dentaire Canadienne avait soumis un mémoire au Comité du Sénat sur les affaires bancaires et le commerce: le mémoire précisait que les propositions du gouvernement libéral quant aux déductions fiscales applicables aux petites entreprises comportaient de "graves lacunes de structure" et seraient "impossibles à administrer".

Le Comité du Sénat s'était alors montré favorable au mémoire de l'ADC et avait remarqué qu'il était arbitraire et discriminatoire de décider que les dentistes, les avocats, les médecins et les comptables n'étaient pas admissibles aux déductions applicables aux petites entreprises.

Le président de l'ADC, le Dr Clyde Covit, s'est tenu en rapport à ce sujet avec le ministre des Finances, M. John Crosbie.

Le Ministre a annoncé en détail les modifications qu'il entendait apporter aux amendements proposés par le gouvernement précédent.

Selon les propositions soumises dans le budget de novembre 1978, le taux spécial d'impôt sur les corporations considérées comme des petites entreprises ne serait pas applicable à trois catégories de revenus: les revenus provenant d'une profession, les revenus provenant de certains services personnels, et les revenus tirés de certains services de gestion et d'administration.

Ces types de revenus d'affaires auraient été frappés du taux normal d'imposition, qui s'échelonne de 46 à 51 pour cent, plutôt que de bénéficier du taux spécial de 25 pour cent applicable aux petites entreprises.

À l'heure actuelle, M. Crosbie propose l'adoption d'un nouveau taux d'imposition des petites entreprises, s'établissant à 33 1/3 pour cent, qui serait applicable à tout Canadien contrôlant une entreprise privée tombant dans l'une des trois catégories. M. Crosbie a ajouté les vétérinaires et les chiropraticiens aux groupes professionnels qui seraient touchés par les amendements.

Bien que le Dr Covit admette que le gouvernement a modifié quelque peu sa position originale, qui était complètement inacceptable, il espère que le gouvernement actuel continuera de réexaminer les problèmes relatifs aux déductions applicables aux petites entreprises.

"Les dentistes devraient écrire à leur député pour exprimer leur préoccupation à l'égard de ces mesures fiscales qui s'appliqueraient de façon arbitraire et discriminatoire à un petit groupe de professionnels", affirme le Dr Covit.

Dans l'intervalle, le greffier du Sénat a demandé à l'Association Dentaire Canadienne de formuler ses commentaires quant aux propositions de M. Crosbie. L'ADC étudie donc le Bill C-17 au nom de tous ses membres et soumettra une version révisée de son mémoire original au Comité du Sénat sur les affaires bancaires et le commerce.

En dépit des modifications apportées par M. Crosbie au taux d'imposition, le Dr Covit demeure convaincu de la nécessité de poursuivre l'étude des aspects arbitraires et discriminatoires du projet de loi.

Un vice-roi Acadien

Le Dr J. Aubin Doiron, dentiste dans l'Île-du-Prince-Édouard, a récemment été nommé Lieutenant-Gouverneur de cette province.

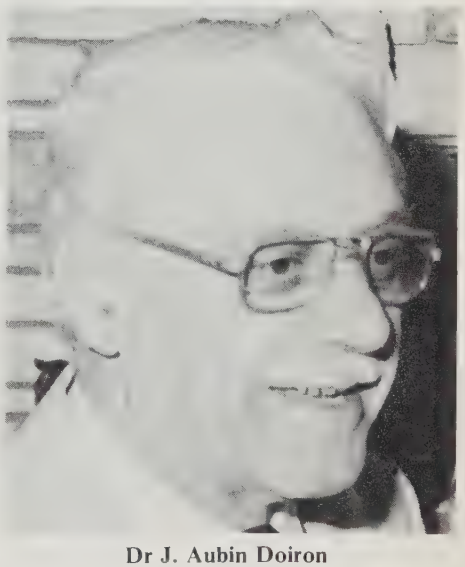
Jadis président de l'Association dentaire canadienne, le Dr Doiron est le premier Acadien de Summerside, dans l'Île-du-Prince-Édouard, à remplir la fonction de vice-roi.

Le Dr Doiron est né à North Rustico, dans l'Île-du-Prince-Édouard, le 10 juin 1922. Il a fréquenté l'école Stella Maris et le collège Sainte-Anne. Il a obtenu son B.A. en 1946.

Depuis qu'il est diplômé de l'École dentaire de l'Université de Montréal, en 1951, le Dr Doiron est praticien à Summerside.

Par trois fois, il a agi comme représentant auprès du Conseil administratif de l'ADC.

En apprenant que le premier ministre Joe Clark lui avait offert le poste



Dr J. Aubin Doiron

de vice-roi, le Dr Doiron a déclaré à la presse locale: "J'étais au septième ciel."

Le Dr Doiron et son épouse Bernice ont sept enfants dont les âges varient de 15 à 29 ans.

Gaz nocifs

Il y aurait du danger pour les dentistes et leurs assistants qui s'exposent fréquemment aux oxydes azoteux. Ces expositions répétées peuvent causer des problèmes aux reins, au foie et au système nerveux. Tels sont les premiers résultats d'une étude faite par l'American Dental Association.

Ce sont des porte-parole de l'ADA qui ont fait cette déclaration lors du congrès annuel de l'Association qui se tenait à Dallas, au Texas, récemment.

Le Dr William Greenfield, de la ville de New York, aurait déclaré: "L'étude semble démontrer que le taux de certaines maladies déterminées est plus élevé chez les hommes et les femmes de la profession dentaire qui sont exposés à inhaler des quantités infimes de sédatifs anesthésiques, que chez ceux qui ne le sont pas."

Selon le Dr. Greenfield, "on a noté une importante augmentation des maladies du foie, des reins et du système nerveux chez les dentistes et les membres du personnel féminin qui sont grandement exposés à ces oxydes."

Quant aux gaz hilarants, ils semblent nuire à la reproduction. Ainsi on a constaté une augmentation des fausses couches parmi les femmes des dentistes exposés aussi bien que parmi le personnel dentaire féminin.

On n'a pas encore terminé l'analyse des données recueillies. L'étude est fondée sur plus de 64,000 questionnaires remplis par des dentistes et des assistants dentaires choisis par l'American Dental Association à travers les États-Unis.

Le National Institute of Occupational Safety and Health des États-Unis a récemment fait paraître un article sur les oxydes azoteux et sur les dangers qu'ils représentent pour la santé.

Au nombre des torts causés à la santé, on signale une augmentation de 78 pour cent du taux des fausses couches parmi les femmes des dentistes et une augmentation de 156 pour cent du taux des maladies hépatiques parmi les dentistes.

Comme mesures à prendre, l'office de santé américain suggère de porter des masques jetables; de placer le conduit de ventilation de l'appareil aspirateur dont se sert le patient de manière à ce qu'il débouche sur un endroit sûr à l'extérieur de l'édifice; de demander au patient de parler le moins possible pendant les traitements; de procéder régulièrement à l'entretien de l'équipement servant à l'anesthésie; de vérifier souvent l'équipement pour détecter les fuites possibles; d'utiliser un ventilateur pour disperser les concentrations d'anesthésique que le personnel peut aspirer; de projeter du N^2O dans l'aire de respiration du dentiste.

D'après un résumé de l'article original publié dans le Journal de la Wisconsin Dental Association, les dentistes n'ont aucune difficulté à appliquer ces mesures préventives. Outre qu'elles complètent les mesures de sécurité recommandées pour les analgésies et les anesthésies dentaires par inhalation, elles sont efficaces pour éliminer jusqu'à 98 pour cent des concentrations de gaz que le personnel pourrait aspirer.

Manuel de l'ADC

Depuis septembre 1979, alors que le conseil d'administration de l'Association Dentaire Canadienne s'est prononcé en faveur de la distribution à tous les dentistes canadiens de l'exposé de politique de l'ADC à l'égard des plans d'assurance dentaire et du guide sur la façon de remplir les formulaires de réclamation, les demandes sont venues de toutes les provinces du pays.

Bien que le Manuel n'ait pas encore été imprimé, des copies anticipées ont été distribuées aux membres corporatifs et l'opinion générale est qu'il s'agit là d'un ensemble de principes directeurs qui répondra à un besoin aigu de normalisation des méthodes.

Le Manuel sera distribué aux membres de l'ADC grâce à l'autorisation des membres corporatifs et il sera également disponible, sur demande, aux dentistes individuels du Québec et de l'Ontario.

Le Manuel devrait être mis en circulation au début de 1980.

Le Congrès de l'ADC en 1980

Des projets sont en cours en vue du Congrès de l'ADC qui se tiendra à Halifax, en Nouvelle-Écosse, en 1980. Les Drs John Christie et Terry Ingham en sont les coprésidents et ils ont adopté pour thème: "Learn and relax in Halifax" (Instruisez-vous et détendez-vous à Halifax).

Le comité organisateur se compose des membres suivants: le Dr David Precious, président du comité scientifique; le Dr Carl Dexter, chargé du protocole; le Dr Art Ervin, chargé des démonstrations; le Dr George Clark, chargé de l'hébergement; le Dr Joe Elias, chargé des exposants; le Dr Phil Amys, chargé du marketing; Suzanne Mader, chargée des assistants dentaires; Kim McGrail, chargée des hygiénistes dentaires; les Drs Ralph Conter et Elaine Gordon, chargés des affaires sociales; Jean Dexter, chargée du programme des conjoints; et le Dr Cliff Murray, chargé du transport.

Le Congrès aura lieu du 13 au 16 juillet et se tiendra principalement au Centre des Arts Dalhousie. Le département des études dentaires spécialisées de l'Université Dalhousie s'occupe des inscriptions et du programme clinique.

Dans les prochains numéros du Journal, on trouvera de plus amples renseignements sur le Congrès.

En cas de désastre

Récemment, l'Association dentaire canadienne a émis une déclaration au sujet des tâches qui peuvent incomber aux dentistes dans les programmes établis par les hôpitaux en cas de désastre.

Ainsi il fut décidé que, dans les cas où il se produirait un désastre qui obligerait la mobilisation de tous les corps médicaux et paramédicaux d'une communauté, on appliquerait les programmes prévus par l'hôpital ou les hôpitaux concernés.

Au nombre des tâches assignées au personnel médical et dentaire de l'institution, certaines responsabilités peuvent être prises entièrement par des dentistes placés sous la direction général du médecin qui est en charge de la région sinistrée. Par exemple, les dentistes peuvent se charger de la réduction des fractures simples, faire des sutures, administrer les premiers soins contre les brûlures, préparer les intraveineuses, assister le chirurgien en chef, identifier et traiter les traumas maxillo-facials, et pratiquer la réanimation cardio-pulmonaire.

De plus, l'ADC prévoit que les chirurgiens buccaux pourraient être chargés de toutes ces tâches et, parce qu'ils sont bien qualifiés pour rétablir les fonctions vitales et donner l'anesthésie, on peut faire appel à leurs services pour la réanimation.

Cette déclaration de l'ADC a été transmise au directeur général de l'Association des Facultés dentaires canadiennes, aux directeurs provinciaux des Services de santé d'urgence, aux organismes provinciaux qui émettent les permis dentaires, au Conseil canadien d'agrément des hôpitaux, aux registraires provinciaux, au secrétaire général de l'Association médicale canadienne, et au directeur général des Services dentaires du Ministère de la Défense nationale.

L'ODS participe à la vie communitaire

L'Ottawa Dental Society se vante de prendre une part active à la vie communautaire de la capitale canadienne. Dernièrement, sous la direction de son chargé des relations publiques, le Dr Art Conn, l'ODS a tenu un kiosque à la Health and Fitness Fair commanditée par le Centre communautaire juif. La manifestation a eu lieu du 28 au 30 octobre.

À l'aide d'accessoires et d'appareils audio-visuels fournis par les dentistes et les laboratoires locaux, le kiosque de l'ODS donnait des renseignements sur la carie, la fluoration, l'usage de la soie dentaire, le brossage des dents, les dentifrices ainsi que sur d'autres sujets.

Les enfants ont été les plus nombreux à visiter le kiosque, a déclaré le Dr Richard Cooper, président de l'ODS, et ils ont posé des questions sur la façon de se nettoyer les dents et sur l'orthodontie.

Selon le Dr Cooper, la manifestation n'a pas été un succès si l'on en juge par le nombre de visiteurs, mais ce fut quand même une bonne occasion pour les dentistes, leurs assistants et les laboratoires du corps dentaire d'Ottawa de se rassembler et de travailler sur un même projet. Subventionné par l'ODS, le kiosque fut présenté comme un projet du corps dentaire d'Ottawa.

Pendant la durée de la manifestation, le kiosque était tenu par le Dr Conn, le Dr Cooper, Diane Langevin, Kim Hinton, Sandra Smith et le Dr A. Shapiro.

La GRC fait appel. . .

Le Détachement de Peace River de la Gendarmerie Royale du Canada fait appel au Journal de l'Association dentaire canadienne pour identifier le corps d'un homme qu'on a trouvé flottant sur les eaux de la rivière Peace, en Alberta. Le cadavre était dans un état de décomposition avancée, mais sa dentition avait subi de nombreux traitements.

On a donc procédé à un examen visuel et radiologique complet des mâchoires et le rapport post mortem indique que la santé buccale du mort s'était détériorée depuis un certain temps. On a noté quelques lésions périapicales et des lésions carieuses généralisées. De plus, le mort avait souffert d'une périodontite assez grave.

Le traitement le plus récent qu'il eût reçu semble avoir été l'extraction de la dent no 41 et il est possible que ce fut une urgence.

Deux caractéristiques particulières sont à noter: un bridge en matière plastique allant de la dent no 11 à la dent no 22 et, sur la dent no 34, une couronne aux trois quarts en or avec une attache buccale ("buccal bar").

Le mort était vraisemblablement dans la quarantaine, mesurait de 6'3" à 6'5", avait la taille mince et ses cheveux grisonnaient. Au moment où il a été trouvé, il portait une canadienne brun clair, une chemise en plaid, un chandail à col roulé bleu, un pantalon en plaid brun, des bas de laine orange et des grosses bottes de travail en cuir brun.

Les dentistes qui auraient des renseignements sur cet individu sont priés de communiquer avec le Caporal C.R.E. Bothe, Division 'K', Gendarmerie Royale du Canada, Détachement de Peace River, Case postale 429, Peace River, Alberta T0H 2X0.

Rapport de l'ACHP sur la fluoration

Bien que des recherches aient démontré que le fluorure est mutagène dans certains organismes, "les différents résultats obtenus rendent difficile, si l'on tient compte des doses efficaces et de la sensibilité des espèces, toute application aux humains et ils indiquent qu'il faut pousser les recherches plus avant." Telle est la conclusion d'un rapport émis récemment par l'Association canadienne d'hygiène publique (ACHP) et intitulé: "Criteria Document in Support of a Drinking Water Standard for Fluoride — Canada" (Dossier de référence à l'appui de normes pour la fluoration de l'eau potable — Canada).

Cette conclusion repose sur les résultats de recherches qui ont été menées jusqu'à la fin de l'année 1977 et qui ont servi de base au rapport de l'ACHP.

Au cours d'un entretien qu'ils a eu avec le Dr Jack Hann, de l'Université de la Colombie Britannique, ainsi qu'avec un membre du Comité consultatif de l'ACHP, Lloyd Bowen, le préposé à la fluoration de l'ADC, a appris que des études plus récentes ont été faites et que les rapports publiés en 1979 semblent réfuter les résultats des recherches antérieures. Celles-ci avaient démontré que, sous l'effet de différentes solutions concentrées contenant du fluorure, les cellules animales subissaient des transformations.

Selon le Dr Hann, parmi les études passées en revue par l'ACHP pendant qu'elle préparait son rapport, se trouvaient des études menées sur des animaux et leurs auteurs étaient des chercheurs qui avaient tenté de démontrer que des solutions de fluorure de sodium en doses variées avaient un pouvoir mutagène sur les cellules animales. Ces doses variaient de un à deux cents miligrammes par litre.

À la lumière des recherches entreprises par A.H. Mohamed et par ses coéquipiers, le Comité consultatif a exprimé l'avis qu'on ne devait pas s'attendre à trouver dans le sérum ou le plasma humain les mêmes taux élevés de fluorure que ceux qui altèrent les cellules animales. De ces recherches faites sur les animaux, le Comité a-t-il souligné, on ne peut déduire que des mutations semblables se produisent dans les cellules humaines.

On a donc conclu que "le fluorure n'altère pas la structure des chromosomes et n'est pas mutagène ainsi que l'ont démontré et les tests faits sur les animaux et les expériences effectuées sur des microbes capables de subir des mutations."

Tout récemment encore, soit cette année même, un groupe de chercheurs a tenté de répéter les expériences initiales qui ont permis de conclure que le fluorure pouvait avoir des propriétés mutagènes. (Voir A.H. Mohamed, "Induced recessive lethals in second chromosomes of Drosophila Melanogester by hydrogen fluoride" dans "Proceedings of the Second International Clean Air Congress," 1971.) Cependant, les chercheurs n'ont trouvé aucune preuve que les cellules animales subissaient des mutations lorsqu'elles étaient soumises à des fortes ou à des petites doses de fluorure de sodium. Ce groupe de chercheurs du National Institute of Health, à Bethesda, au Maryland, était placé sous la direction de E.R. Martin et comprenait le Dr Brown.

Par ailleurs, il n'y a aucune preuve valable non plus à l'effet que la présence de fluorure dans l'eau potable causerait le cancer chez les humains, lit-on dans le rapport de l'ACHP. "Ces allégations ont été fondées sur des études dont l'analyse statistique n'était ni complète ni faite convenablement."

Le Comité consultatif pour la fluoration de l'eau potable de l'Association canadienne d'hygiène publique compte parmi ses membres le Dr S. Ramamoorthy, directeur de la programmation; le Dr Don Lewis, de l'Université de Toronto; le Dr Jack Hann, de l'Université de la Colombie Britannique; le Dr Denis Boutin, de Saint-Basile-le-Grand, Québec; et le Dr James Robinson, de l'Université de la Colombie Britannique.

Endodontie

Récemment, les Drs Cal Torneck et Norman Levine, tous deux de Toronto, étaient les principaux conférenciers lors de la séance générale de la Réunion anuelle de l'Académie canadienne d'endodontie. Ils ont parlé des traumatismes qui affectent les premières dents et les dents permanentes. Le Dr Michael Heuer, directeur du département d'endodontie à l'École dentaire de l'Université Northwestern, à Chicago, a présenté un essai intitulé "Current Concepts of Root Canal Instruments" (Les idées actuelles sur les instruments destinés aux canaux des racines dentaires).

Il s'agissait de la quinzième Réunion annuelle de l'Académie et elle se tenait en même temps que le Congrès de l'Association dentaire canadienne, à Québec.

L'Académie canadienne d'endodontie a été fondée en 1964, à Toronto, et deux années plus tard, l'endodontie était reconnue comme un spécialité par l'Association dentaire canadienne. Depuis lors, toutes les provinces ont des dentistes qualifiés qui se spécialisent en endodontie. Actuellement, ceux-ci sont plus de cinquante à travers le Canada.

Mesures adoptées pour éliminer les dangers d'hepatite "B"

Les démarches entreprises par l'Association dentaire canadienne au nom de tous les dentistes du pays afin de soumettre les réfugiés indochinois à un examen, ont été couronnées de succès.

"Le Ministère de la Santé et du Bien-être social nous a annoncé que son ministre a décidé de soumettre tous les réfugiés indochinois à un examen pour déceler les cas d'hépatite de type B et de communiquer les résultats aux différents services de santé." C'est ce qu'a déclaré M. Hubert Drouin, directeur général de l'ADC, au cours d'une récente rencontre avec les directeurs exécutifs des membres associés.

"On espère également que les autorités médicales aviseront les réfugiés qui sont déjà au Canada et qu'ils les inviteront à se faire examiner pour repérer ceux qui souffrent d'hépatite," a ajouté M. Drouin.

L'examen des nouveaux venus se fera aux deux centres d'arrivée, soit au Québec et en Alberta. On fera des prises de sang pour identifier les sujets porteurs du virus hépatique et les résultats seront communiqués d'abord aux ministres de la santé provinciaux, ensuite aux autorités médicales des localités concernées. Lorsqu'un émigré indochinois a besoin de soins dentaires, on demande à son dentiste de téléphoner au service de santé de sa région afin de savoir si le patient est positif ou négatif. Si le patient est positif, il est adressé à la clinique dentarie d'un hôpital. Le dentiste peut aussi traiter lui-même le patient, mais à la condition de prendre les précautions prescrites et de bien stériliser son équipement.

Si le service de santé auquel s'adresse le dentiste ne possède pas de dossier sur le patient, on demande à celui-ci de se soumettre à une prise de sang. Et si les soins exigés sont urgents, on l'envoie à la clinique d'un hôpital où des mesures rigoureuses sont prises pour assurer une stérilisation complète.

Le Ministère de la Défense nationale se charge entièrement de ce programme. Il n'en coûte donc rien aux patients, aux dentistes et aux services de santé impliqués.

C'est le Dr James Main, spécialiste en pathologie buccale à l'Université de Toronto, qui, le premier, a attiré l'attention de l'ADC sur le danger d'hépatite auquel les dentistes et leurs personnels sont exposés. On était alors en septembre, au moment où l'immigration des réfugiés vietnamiens atteignait le plus grand nombre. À ce moment, le Dr Main a invité les dentistes à se méfier, le virus hépatique de type B étant secrété dans la salive et dans le sang. Les réfugiés vietnamiens sont un cas particulièrement sérieux. En effet, 14 pour cent des Indochinois son porteurs du virus hépatique comparativement à moins de un pour cent de Canadiens.

À la suite des premières démarches faites par l'Association dentaire canadienne auprès du gouvernement fédéral pour obtenir que tous les réfugiés vietnamiens soient soumis à un examen, le ministre de la Santé et du Bien-être social, M. David Crombie, a convoqué une assemblée d'experts internationaux. Elle a eu lieu le 26 sep tembre dernier, à Ottawa. Le Dr Main y représentait l'ADC.

Voici les recommandations que ces experts ont faites: (1) à cause des risques encourus par le dentiste et son personnel, tous les réfugiés vietnamiens devraient, avant de recevoir des soins dentaires, se soumettre à un examen afin de savoir s'ils sont des sujets porteurs du virus hépatique de type B; (2) dans les cas où il est urgent de prodiguer des soins dentaires à un réfugié vietnamien, il faut le considérer comme un sujet porteur du virus hépatique et le traiter dans des conditions d'esepsie totale; (3) les réfugiés dont le résultat du test hépatique est négatif peuvent être traités normalement, sans qu'aucune précaution particulière ne soit prise; (4) les sujets porteurs doivent être traités dans des conditions d'asepsie totale (chirurgiens et assistants doivent porter la robe, le masque et les gants; instruments chirurgicaux et vêtements protecteurs doivent être stirilisés avant d'être lavés; tables et planchers doivent être désinfectés avec du glutaraldéhyde activé ou un autre produit éprouvé; sont à éviter les foreuses à turbine, les détrarteurs ultrasoniques et les appareils qui peuvent créer des nuages de poussières ou de vapeurs contaminés; le sujets porteurs doivent être les derniers clients traités dans la journée; (5) les dentistes canadiens sont invités à déterminer leur résistance au virus hépatique afin qu'on puisse connaître ceux qui sont immunisés contre cette maladie; (6) les gouvernements provinciaux devraient établir, dans tout centre urbain important, une clinique dentaire spéciale pour traiter les sujets porteurs du virus hépatique de type B.

Examens

La première partie des examens (sciences fondamentales) pour être admis au Collège royal des dentistes du Canada aura lieu lundi, le 16 juin 1980, dans les centres régionaux à travers le pays.

Les candidats qui désirent s'inscrire à ces examens doivent le faire avant le 15 janvier 1980 en écrivant au Collège royal des dentistes à l'adresse suivante: Medical Arts Building, 170 rue St. George, salle 614, Toronto, Ontario M5R 2M8.

On peut se procurer des formulaires d'inscription pour ces examens ainsi que de plus amples renseignements en communiquant avec le Dr J.E. Speck, secrétaire, registraire et trésorier, à l'adresse ci-haut indiquée.

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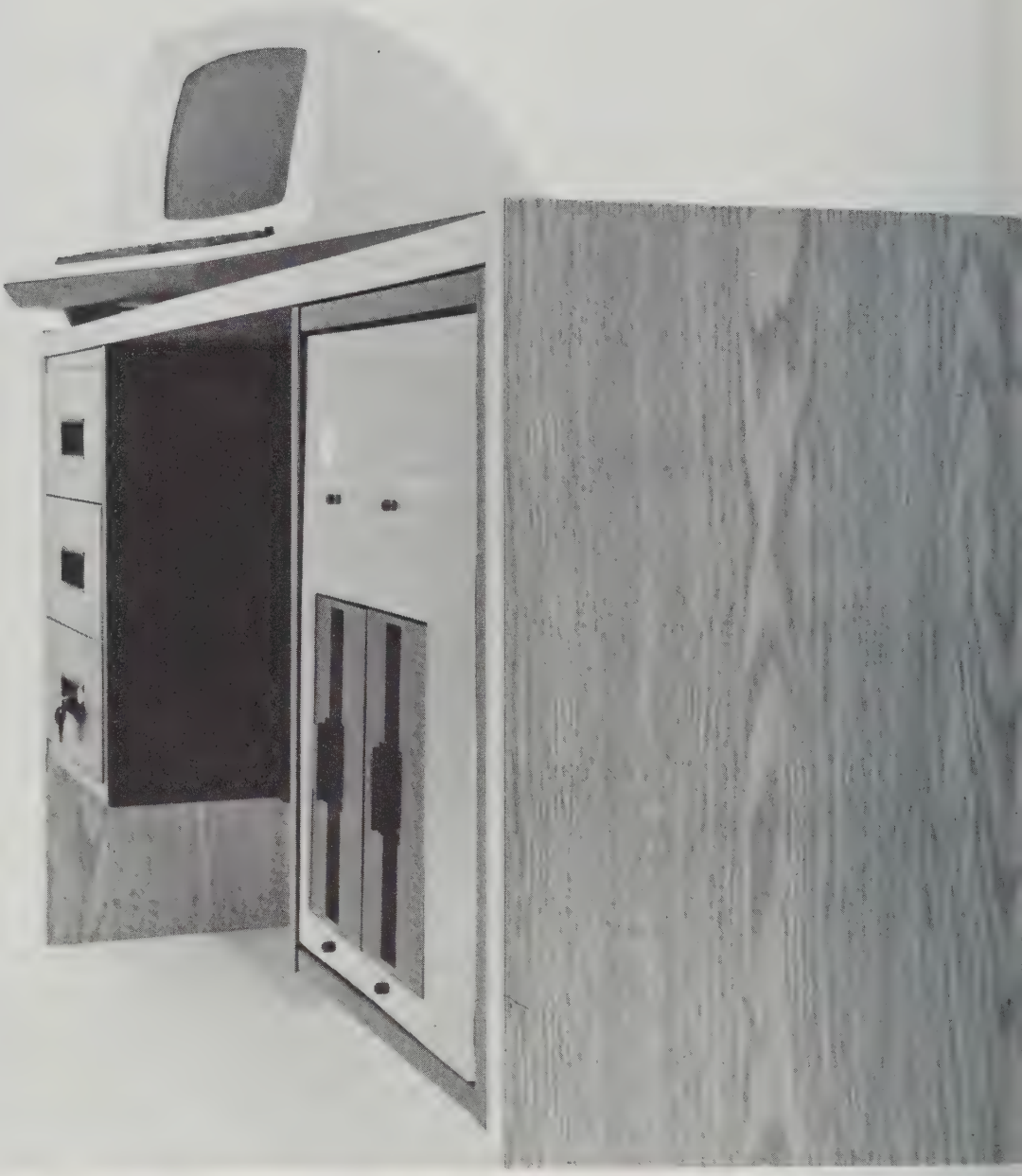

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Royal College celebrates Year of the Child

To commemorate the WHO International Year of the Child, the Royal College of Dentists of Canada organized an International Symposium on Dental Perspectives — a series of papers on (a) Oral health status of children, (b) Oral disease etiology (c) State of the Art — Prevention and (d) Implications of dental disease.

The consensus emerged that Canada needs a dental health index, analogous to that of the WHO. This index is necessary in order to quantify the state of dental health in the various provinces and Canada as a whole.

This Symposium was aimed at general practitioners and specialists and the texts of the main speakers are presented in this issue.

PREVENTION

As individual and government health expenditures rise with little improvement in health status, policy makers claim only 'prevention' will improve health and hold down costs. By contrast to many other disease processes, a great deal of information has accumulated concerning caries and periodontal disease during recent decades. As a result a large proportion of the ravages of these two disease processes are known to be preventable. Nevertheless two major questions remain unanswered: (1) How much prevention can be accomplished through professional dental care compared with other modalities?; and (2) Can the present lack and maldistribution of professional care be accommodated through greater emphasis on prevention?

Much of the present-day emphasis on prevention of dental disease through individual responsibility for lifestyle and dietary change tends to exacerbate the disparity in dental health between the rich and poor sections of the community. Nevertheless there are measures for preventing dental caries and periodontal disease that can be made universally available, e.g., water fluoridation.

Topical fluoride applications, fluoride mouthwashes, coupled with fissure and pit sealants comprise just part of the battery of individual techniques available for preventing dental caries. Other agents, such as alexidine and chlorhexidene are proven antiseptic agents that can eliminate dental plaque, yet require more investigation before they can be made readily available to the general public. It is unfortunate that society as a whole is not demanding their rights to such preventive measures.

Policy makers and those who seek to influence them often overstate the efficacy of preventive measures. Although the ravages of dental disease are in large measure preventable, the chronic nature of caries and periodontal disease mean only marginal improvements in the quality of oral health are possible in the short term: on the long term, there are well-documented data verifying the efficacy of a variety of preventive measures. The current level of dental diseases, in modern society is still unacceptable, and much of the time and effort required for their treatment would be more efficaciously devoted towards prevention.

The ability to prevent disease depends in part upon technological advances. Another facet hinges on a dentist's skill in communicating with patients. These two aspects are not unrelated: the optimal use of technology requires effective interaction between recipient and provider. Unfortunately a dentist's reliance on technology may curtail his skills in exchanging information with patients, which may effect the heavy emphasis on manual skills in dental education.

No society can ethically relinquish efforts to treat and eradicate dental disease. Yet there is a growing recognition of the need to evaluate the cost-effectiveness of some aspects of dental therapy, including techniques for prevention. In this regard, research is required into the development of ideal preventative procedures and devices.

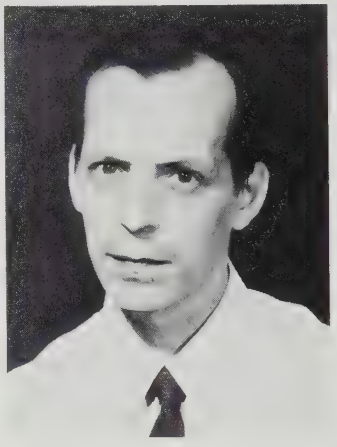
The contact between dentist and patient affords an opportunity to distinguish between individuals who are susceptible to disease from those that are not; as a result, it may be prudent to offer patients different preventive measures. Social or environmental strategies for preventing dental disease of complex origin affect everyone. Yet, due to the complexity of dental caries and periodontal disease, the chance of a single discovery to eliminate toothlessness and dental disease is remote.

"Due to the complexity of dental caries and periodontal disease, the chance of a single discovery to eliminate toothlessness and dental disease is remote."

Educational aids are available to assist in patient

motivation, including pH meters to measure the acidity of the oral environment following excessive sugar consumption, and plaque control programs using disclosing tablets or solution. Other techniques include regular measurement of the plaque index at check-up times to monitor the patient's control of their own oral hygiene.

Personal oral health is an individual's responsibility. Yet society can ill afford the resources required for treatment which would be more efficaciously devoted to prevention. In prevention, the private practitioner plays an integral role: the more complex the restorative treatment for a patient, the greater should be the attention paid to prevention to ensure the persistence of healthy gingival tissue. This is particularly important for children, especially in this Year of the Child. Ethically, there is no substitute for prevention.



Dr. C.L.B. Lavelle,
Symposium
Chairman

L'ANNÉE INTERNATIONALE DE L'ENFANT

En vue de commémorer l'Année Internationale de l'Enfant, parrainée par l'Organisation Mondiale de la Santé, le Collège royal des dentistes du Canada a organisé un colloque international sur la santé dentaire des enfants. Le colloque comprenait la présentation d'une série d'exposés sur quatre principaux sujets: (a) l'état de santé dentaire des enfants, (b) l'étiologie des maladies buccales, (c) les perfectionnements en matière de prévention, et (d) les implications des maladies dentaires.

En général, on est tombé d'accord que le Canada avait besoin d'un indice de la santé dentaire, semblable à celui de l'OMS, afin de quantifier l'état de la santé dentaire dans les diverses provinces, ainsi que dans l'ensemble du Canada.

Le colloque était organisé à l'intention des généralistes et des spécialistes. Les textes des principaux conférenciers sont résumés dans le présent numéro.

The concept of **Oral health status**

Donald W. Lewis, DDS, DDPH, MScD, FRCD(C),
Toronto, Ontario

Understanding of "good" oral health status needs clarification since it should form the rational basis both for government policies about dental prevention and treatment (for example, children's denticare) and everyday dental practice decisions.

Health is an important word in all languages. In English it arises from the old English word "hāl", meaning whole, which remains in use today in positive expressions such as "hale and hearty". In French "santé" originates from the Latin word "sanitas" which is utilized in English words such as "sanitary", an aspect of health, and "sanity", another aspect.[1]

The World Health Organization defines health as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity. Some infer from this definition that to be healthy one must be completely free of disease, including incipient disease, but this is an unrealistic goal even for that very limited site in the body, the oral cavity. Rather, the W.H.O. definition underscores the idea that health is not the opposite of disease. And that health is multidimensional, consisting not only of biological factors but, as well, physical (disability) and socio-psychological components. Also, the individual and his reaction to an alleged defect are important. Thus a person could be healthy if he were completely adjusted — physically, mentally, and socially — to his defect. Because it may seem heretical to health professionals that a person with a clinical defect can be healthy, this idea of adjustment or adaptability in relation to the notion of adequate oral health status will be explored.

LE CONCEPT DE LA SANTÉ DENTAIRE

Le docteur Donald Lewis, professeur et président du département de dentisterie communautaire, Faculté de dentisterie de l'Université de Toronto, fait remarquer l'importance de facteurs culturels dans la perception de ce qui est acceptable en matière de santé buccale. Cette perception peut subir une évolution graduelle et, à l'intérieur de la même société, il peut y avoir des variations dues aux différences entre les conditions socio-économiques et la disponibilité des dentistes. Il convient donc, tant pour le dentiste que pour le public, d'aborder le concept d'une santé buccale acceptable dans une perspective globale . . . de nouvelles recherches et un sévère examen de la situation par des équipes multidisciplinaires pourraient mener à une clarification de méthodes générales de mesure de la santé buccale et, peut-être, à une meilleure rationalisation du concept de la santé buccale dans toute sa perspective.

ADEQUACY OF ORAL HEALTH

Despite the fact that adequacy of oral health is a value-laden term and, as such, subject to many different interpretations, its meaning cannot be ignored. It is recognized that cultures vary in their understanding of acceptable oral health status, and for each culture, this may change with time. Within the same society variations may exist due to differences in regional socioeconomic conditions and dentists' availability. So the approach to the meaning of adequate oral health must be general, firstly for dentists and secondly, for the public.

Descriptive epidemiology is the study of the amount and distribution of disease in groups of people. Using the epidemiologic model which most dental clinicians and researchers would feel comfortable with, adequacy of oral health might be assessed by judging what "good" and, for contrast, "bad" oral health status is. Good oral health for dentate persons can be represented by a patient with very little or no clinical evidence of disease, either because no or little disease has occurred or minimal disease has been treated. By contrast, much clinical evidence of disease or, possibly, signs of much treatment along with the presence of plaque and calculus suggestive of continuing disease would qualify as poor oral health. So clinicians' and epidemiologists' understanding of good (or adequate) and bad (or inadequate) oral health is often tied to a determination of the amount or severity of disease experienced, treatment levels achieved and treatment needs remaining.

This rather simple epidemiologic, clinical description of oral health is, however, really very complex since it depends upon the interaction of all the many factors determining disease attack with all those influencing patient demand for, and receipt of dental preventive and curative care. An additional complication occurs when patients' views, ignored until now, are considered.

Clinical observations and research have documented a disparity between dentists' and patients' perceptions of adequacy of oral health and treatment needs which appears most frequently in relation to prosthodontic and orthodontic treatment.[2,3,4] Many patients (or parents, in orthodontics) perceive their needs for prosthetic or orthodontic appliances to be lower than their dentists assess them to be. As seen in **Table 1,** disparities also occur for general oral health. Barenthin found only 45 per cent of the persons examined in a small Swedish town had acceptable dental status according to the examining dentist(s); however, 83 per cent of the same people were satisfied with their own oral status.[5] There was no statistically significant difference between the percentages of persons satisfied with their dental health whether or not the dentist thought it acceptable (86 per cent, 154/179 versus 80 per cent 175/219 in **Table 1**). Simply put, patients were quite satisfied independently of what the dentist(s) thought.

TABLE 1

Dentist versus personal assessments of oral health status*

Dental Status (by dentist)	Patients' Personal Assessment: Satisfied	Dissatisfied	Totals
Acceptable	154	25	179 (45%)
Unacceptable	175	44	219 (55%)
	329 (83%)	69 (17%)	398

* Adapted from Table 2, Barenthin, I. The concept of health in community dentistry. J Pub Health Dent 35: 177-184, 1975.

The difference between the dentist's so-called objective assessments and patient's so-called subjective assessments has been described as a technological gap.[6] The dentist, unlike most patients, knows what is technically feasible in terms of treatment and prognosis for improvement. Some patients, however, may be unaware or unconvinced despite explanation by the dentist, of the need to proceed with the proposed treatment.

This disparity in perception between what is acceptable to the dentist on the one hand, and satisfactory to the patient on the other, arises in both private practice and in planning community dental programs. It may, however, be resolved more easily at the practitioner level through personal communication, compromise and the gift of time — opportunities not readily available to the community dental program planner.

Dentists, by training and practise, are historically and intrinsically pre-occupied with disease assessment and treatment. Also, the dental model of good health is linked to a reliance on technology (regular visits, drugs, new equipment) and the attendant economic rewards for providing care rather than on environment, lifestyle, self-responsibility and personal adaptability. This does not, in itself, guarantee that what dentists propose to patients is wrong, but the technical perspective and orientation must be admitted. Furthermore, it does not inspire confidence in the science of the technology to find that dentists disagree in ranking levels of oral health status and in the amount of diagnostic

In areas such as orthodontics it must be recognized that some patients adjust very well, even thrive . . .

and preventive services provided to apparently similar patients.

Nikias and others recently asked New York dentists to rank a number of real-life descriptive health profiles. She reported dentists varied considerably in their assessment of clinical oral status. This variation was highly individualistic of the concerned dentists and more evident with the more complex cases having a combination of contrasting levels of disease and conditions.[7] Great individual dentist variation in the diagnostic and preventive services provided to pre-school children has been reported in Ontario, although the services were free to the children and fairly broad in scope.[8] **Table 2** demonstrates the wide variations in the number of radiographs and topical fluoride applications provided by the ten dentists with the highest level of participation in the program. Usually two of each service were allowed annually.

Self-diagnosis by patients of their oral health status has merit where aesthetics and function are concerned. However, the patient, unlike the dentist, cannot diagnose all disease, and, additionally, may not be aware of the lack of self-repair associated with much dental disease and the virtue of early recognition and selected treatment. From the patients' point of view it is clear they experience a great deal of competition for their available disposable income and dental care may not be a top priority in that competition.

What can the dentist do? Consistent with the W.H.O. definition of health, the dentist must be more sensitive to the patient's ability to adapt to, and be satisfied with, his current oral status. For example, a denture that clinically appears ill-fitting and unbalanced functionally, so long as underlying pathology is not evident or highly predictable, may be acceptable to the patient. Similarly, in areas such as orthodontics it must be recognized that some patients adjust very well, even thrive, with dentitions not reaching clinically acceptable

TABLE 2

For ten dentists with highest participation, percentage of patient-years with, and mean number per patient-year of examinations, radiographs and topical fluoride applications — Waterloo pre-school children's study.

DENTIST Number	MEAN EXAMINATIONS per year	RADIOGRAPHS		TOPICAL FLUORIDES	
		Percent	Mean	Percent	Mean
1	1.19	76.0	0.91	80.1	1.00
2	1.38	3.6	0.04	10.9	0.11
3	1.51	66.0	0.71	61.3	0.67
4	1.43	61.0	0.66	88.0	1.27
5	1.35	67.3	0.79	77.6	0.95
6	1.28	77.1	0.88	76.0	0.90
7	1.27	65.2	0.84	97.8	1.20
8	1.52	65.1	0.68	95.2	1.46
9	1.40	44.9	0.47	65.4	0.73
10	1.34	1.4	0.01	63.0	0.67

Source: Tables E.1 and E.2 Appendix E, The Waterloo time, cost and manpower study of incremental dental care for pre-school children. 1975 (ref. 8).

norms. (Perhaps the norms should be re-examined.) Alternately, dentists need not apologize for the encouragement or outright promotion of necessary curative and preventive treatments that are realistic, practical, of proven effectiveness, and can be rendered efficiently with long-term benefits to the patient.

Part of the problem just discussed arises from a lack of patient knowledge about dental matters to permit him to make rational decisions about treatment and this should be remedied. For children, the mother is the key figure in this regard. Another part arises from how dental health is measured.

MEASUREMENT OF ORAL HEALTH

The oral cavity is readily accessible and, for many conditions, the severity of active and past disease can be measured by dental personnel using common dental indices. The DMF index is used to score dental caries but there are numerous other ways of assessing dental caries, periodontal disease and malocclusion prevalence.[9] More recently, ways of determining treatment needs as well as disease prevalence in epidemiological surveys have been developed[10,11].

With all of these dental indices, three points are evident: (1) all score disease or factors preceeding disease; (2) all represent dental care providers' perceptions of disease or treatment levels; and (3) nearly all measure each type of dental disease separately in a categorical, rather than a combined fashion.

The conceptual difficulties associated with assessing "health" by scoring "disease," and the critical need to consider patient perceptions as well as dental provider assessments, have been discussed. The recognition that since, ordinarily, people do not have a single disease, combinations of disease and other social costs of these diseases must be assessed together is very recent in dentistry.[7,9] This multidimensional approach, reminiscent of the W.H.O. definition of health, is further developed in respect to general health, but here enormous difficulties are recognized in the appropriate weighting of different factors and the need for different general health status indices for different purposes.[12] Dentistry faces similar problems but new research and hard-thinking by multidisciplinary teams might lead to clarification of how oral health in a broad sense should be measured and, perhaps to a better rationalization from all perspectives of the meaning of oral health.

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Oral health status of children
an international perspective

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L'ÉTAT DE LA SANTÉ BUCCALE CHEZ LES ENFANTS

Il n'est plus nécessaire d'accumuler de nouvelles preuves que la conservation d'une bonne santé buccale toute la vie durant dépend de l'acquisition de bonnes habitudes d'hygiène buccale et de bons soins buccaux pendant l'enfance. Il importe toutefois de se rappeler que le maintien de ces habitudes et de ces soins pendant la vie adulte est essentiel à la conservation d'une bonne santé buccale. Le docteur David E. Barmes, chef de la santé buccale à l'Organisation mondiale de la santé, à Genève (Suisse), conclut que le message fondamental est simple, ennuyeux mais essentiel: la prévention constante produit des résultats de beaucoup supérieurs, à moindres frais, que la restauration et la réadaptation. Il ne s'agit pas uniquement d'un problème de santé buccale. En effet, en raison des lourdes conséquences économiques, toutes les autorités en matière de santé doivent se rendre compte du prix de l'inaction ou des initiatives mal guidées. Profitons de l'Année internationale de l'Enfant, et des années qui viennent, pour favoriser la prévention des maladies buccales d'une façon dynamique, planifiée et concertée, dans le meilleur intérêt de l'humanité, affirme le docteur Barmes.

It has become fashionable to nominate a target group for special emphasis at a particular time or over a specified period. Without doubt, this process achieves an intensification of effort in preparation for and during the designated period and thereby much benefit is derived for the specific sector. However, not surprisingly there are a number of pitfalls associated with the process. One possibility is that too much of the available potential and resources will be consumed by the special area during the designated period and even beyond. Another pitfall is infatuation with the process itself, whereby well-meaning institutions, associations and individuals make some special effort with a sense of fulfilling their responsibilities and then breathe a sigh of relief and return to business as usual until another special drive comes their way. A third major trap results from "shuttered" vision of the special area which induces failure to reconcile programs with what is happening, or will happen in other areas which should form extensions for special area programmes. These and other pitfalls have, as a central theme, problems of lack of integrated planning and coordination.

It is important to say that in nominating childhood as a special area the "fashion" has focused upon the most important single group in the oral health sector. Although the "International Classification of Diseases — Application to Dentistry and Stomatology" lists more than 1,000 diseases or conditions which the dentist or stomatologist should be able to diagnose and treat, or appropriately refer, there are only two overwhelmingly

prevalent oral problems — dental caries and periodontal disease. A third set of conditions — dentofacial anomalies — reaches the moderately prevalent classification. For these three diseases or conditions, the childhood and adolescent periods are vital because, for caries, the rapidly destructive phase of the disease occurs in childhood to the extent that if the disease is not prevented or treated in childhood and adolescence, the dentition is almost certainly ruined before adulthood. For periodontal disease, although only the initial stages of the disease occur in childhood and more serious levels only rarely in adolescence, the essential oral hygiene routines which will prevent or minimize these conditions should be installed as a way of life in childhood. For dentofacial anomalies, not only do the conditions occur in childhood, but almost all prevention and care must be practised or performed in that period.

Further evidence that a lifetime of oral health is dependent on the oral health practices and care during childhood is unnecessary. However, it should not be forgotten that extension of those practices and care into adulthood is essential if the possibility of lifetime oral health is to be translated into reality.

DEMOGRAPHY

There are 1,500 million children in the world under the age of 15. The special significance of this group in developing countries is emphasized by the fact that 81 per cent or 1,220 million of those children reside in developing countries. The annual increase in the under 15 years population is 125,000,000.

Urbanization and scholarization are two fundamentally important demographic features in considering the needs of children. Highly industrialized populations

Table 1

PERIODONTAL DISEASE

Age 15-19

Country	Low	Moderate	High
Hungary	Japan	Netherlands	St Kitts
Norway	S. Korea	Sri Lanka	Solomon Islands
FRG	New Zealand	India	Yemen
Scotland	Philippines	Malaysia	Saudi Arabia
Indonesia	Botswana	New Caledonia	Oman
Canada	Ethiopia	Vietnam	
Colombia	Senegal	Kenya	
Paraguay	Israel	Nigeria	
Trinidad	Jordan	Iran	
USA	Sudan	Pakistan	
Australia		Iraq	
		Somalia	

Table 2

Trends for Dental Caries at 12 Years

Country	Year	DMFT	Level	Year	DMFT	Level
Ethiopia	1958	0.2	Very Low	1975	1.5	Low
Kenya	1952	0.1	Very Low	1973	1.7	Low
Nigeria	1963	1.1	Very Low	1973	2.5	Low
						Northern Province

Table 3

Trends for Dental Caries at 12 Years

Country	Year	DMFT	Level	Year	DMFT	Level
Japan	1957	2.8	Moderate	1975	5.9	High
French Polynesia	1963	6.4	High	1977	10.5	Very High
Italy Urban	1966	3.0	Moderate	1977	6.9	Very High

Table 4

Switzerland Caries DMF Teeth 12 Years

1963
All areas very high

1974-75	DMFT
Zurich	3.9 Moderate School based prevention since 1964
Basel	2.3 Low Water fluoridation since 1962
Solothurn	7.3 Very high
Vaud	5.4 - 4.4 High-Moderate Salt fluoridation and tablets since 1969-70
Glarus	7.0 Very high
Lucerne	4.8 High Fluoride tablets program

Table 5

Australia Caries DMF Teeth 12 Years

1956
All areas very high

1974-77	DMFT
Brisbane	4.7 High Fluoride tablet programs
Townsville	4.0 Moderate 10 years water fluoridation
Canberra	2.9 Moderate 12 years water fluoridation
Adelaide	4.6 High 6 years water fluoridation

have experienced progressive urbanization over many decades and reached 100 per cent scholarization, at least for primary schooling, many years ago. Developing countries, in many cases, are only now going through the process of rapid urbanization which is occurring often in an unmanageable wave despite a shortage of job opportunities and even means of obtaining food and shelter. A number of these countries still have less than 50 per cent of school-age children enrolled in school although almost all are moving fairly rapidly towards full scholarization at primary school level.

GLOBAL ORAL STATUS

The global status and trends of oral diseases has been presented to many audiences in the last few years as an important output of the WHO's Oral Health Program. Maps and tables change every six to 12 months when new data are entered into the system. The latest series of tables and maps presenting the oral health status of children globally are presented (**Tables 1-5**).

The main features are: (**A**) For caries: (1) Usually high to very high prevalence of the disease in highly industrialized populations; (2) Usually very low to low prevalence in developing countries; (3) Virtually universal increases in caries prevalence in developing countries ranging from small early increases to rapid changes approaching the highest levels (the latter are most often associated with urbanization); (4) Large decreases in caries prevalence in highly industrialized populations benefiting from broad scale fluoride programmes, especially water fluoridation. (**B**) For periodontal disease: (1) Generally higher prevalence of this disease than for caries to the extent that there are no populations virtually free of the disease as there are for caries; (2) Sharp contrasts in the intensity of the disease with a tendency to lower levels in highly industrialized populations than in the developing countries, though there are many exceptions.

By adding to these features some indications of the prevalence of dento-facial anomalies, we have the ingredients for crude estimates of the oral health needs of children in developing countries.

From a clinical viewpoint, those indicators suggest no more than ten to 12 per cent of 12 year old populations have an important functional and/or aesthetic need for orthodontic care.

STRATEGIES RESPONDING TO GLOBAL ORAL DISEASE STATUS

The work of WHO, using the epidemiological process to achieve a global estimate of disease prevalence and trends, is mature enough by 1979 to provide a rather clear picture of what response strategies are needed in serving best the needs of mankind.

EPIDEMIOLOGY

The magnitude and rate of trends, certainly for dental caries and probably for periodontal diseases and dento-facial anomalies, indicate we need periodical monitoring of oral diseases at intervals of five to ten years. It is also clear that simple, inexpensive methods must be used so that this process can be achieved quickly enough to be of practical use in planning and implementing programs and so that the whole procedure is not abandoned because of lack of funds.

Thirdly, those methods will have to improve in their estimation of preventive and curative treatment needs if their effect on planning and programming is to be optimized.

The WHO approach to those three needs has been, first, to develop the now widely used pathfinder approach of the oral Health Surveys manual. By limiting the survey to a few carefully selected age groups and applying a less than rigid sampling method (which seeks to avoid obvious bias while detecting main contrasts in disease experience), this approach has applied standard dental epidemiological methods in a rapid and inexpensive way. Certainly, the method is applicable in its most rapid and simple form for small populations occupying a small area, with few contrasting conditions. However, with extensions and refinements, we believe the method can serve a monitoring/planning purpose for populations at all levels of development. We also believe that unless it is used, there will be few countries which will attempt or maintain the desired monitoring periodicity.

Secondly, we are devoting much time and effort to methods development for measurement of periodontal diseases, dentofacial anomalies, oral mucosal conditions and use of clinical records. In all of these developments we are endeavouring to measure requirements for preventive and curative services as well as actual disease or condition status.

For periodontal conditions, as an example, we are building upon the work of the Scientific Group Meeting held in Moscow in December 1977, by testing and refining method of measurement proposed there. We have high hopes this method will improve our ability to monitor periodontal diseases in a useful way, but we have doubts based on observations over a number of environmental conditions. For example, we have looked at the Sudanese population. In the mixed, but mainly Arab people in the Northern Provinces, periodontal diseases measured by WHO standard methods in a pathfinder survey varied between moderate and low levels.

However, in the Negro people of the Southern Provinces one group was examined which had extremely low prevalence to the extent that they had the healthiest dental supporting tissues I have ever seen. Yet this group had a high prevalence of calculus which would indicate treatment needs, according to both old and new systems of measurement, equal to many groups which appear to have a much worse periodontal disease status. These variations leave us wondering how long it will be before we can be very precise in our planning procedures for periodontal diseases. (**Table 6**)

Table 6

Periodontal Disease in 15 Year Old Sudanese 1979

	No of Segments With				
	N	Soft Deposits	Calculus	Intense Gingivitis	Advance Involvement
Khartoum	80	3.4	1.9	2.0	0.2
Wadmedani	40	3.1	2.0	2.1	0.1
Juba	20	2.3	1.9	1.3	0.0

Prepared at WHO 1979

Thirdly, we continue to collect comparable data as widely as possible both to fill the blanks in our global picture and to increase our knowledge about trends, as periodicity develops in dental epidemiology. This activity is not just an interesting pastime but is the fuel upon which intervention strategies can be based.

PREVENTION

It is encouraging that preventive programs, particularly those using fluorides, have started to show dramatic population effects. In the past we had only evidence from limited population groups to demonstrate how successful prevention can be. However, the message is clear we must have a greater impact on national preventive efforts not only to improve the oral health status of children, but to prevent massive increases in dental caries in vast populations in developing countries.

WHO's oral health programme of promotion of national preventive plans is aimed at doing just that and all its research, field trials and country consultations are focused upon that aim.

NATIONAL INTEGRATED PLANNING

Purely by prevention of oral disease in whole populations great health and economic benefits would accrue. However, to obtain the best results from both global epidemiology and preventive programs, it is essential to have effective, integrated planning which affects the whole population and adjusts for all major factors in the oral health or disease equation. This type of planning, as far as our information extends, exists nowhere. Instead, there is manpower planning in isolation, there is preventive planning in isolation, and there is either services planning in isolation or a market-controlled supply and demand situation.

Dental manpower is moderately to very available in highly industrialized countries. It is usually scarce in developing countries. Integrated planning is vital to maintaining a manpower supply neither in excess as disease levels fall nor hopelessly inadequate as disease levels rise. **Tables 7 and 8** give us a more comprehensive look at the situation.

Table 7

Dentist/Population Ratios (1975 Data)

Africa	68 000
America	3 300
Asia (Excl. USSR)	30 700
Europe (Excl. USSR)	2 800
USSR	2 500
Oceania	3 200

(Prepared at WHO 1979)

National integrated planning, by which manpower production in numbers and types reacts to treatment and preventive goals and to the achievement of those

Table 8

Estimated Number of People per Dentist in Selected Countries 1977 Data

Country	Population Per Dentist
Sweden	1,140
F.R.G.	1,960
U.S.A.	1,970
Uraguay	2,200
Australia	2,460
U.S.S.R.	2,500
Cuba	3,250
England and Wales	3,460
Bolivia	4,630
Egypt	15,220
India	65,720
Thailand	68,840
Bangladesh	775,910
Ethiopia	1,080,540
Niger	1,150,000

Prepared at WHO 1979

goals, is another high priority part of WHO's Oral Health Program. It is the fundamental activity in country consultations with start with a situation analysis, using the epidemiologic process as well as other information gathering and lead to an integrated plan appropriate to the defined situation.

THE GLOBAL ORAL HEALTH PERSPECTIVE

This paper has so far dealt with some demographic features, global oral health status and response strategies embodied in the WHO Oral Health Program. It is entended to use all those ingredients in some broad examinations of what may happen to global oral health over the next couple of decades, concentrating on, but not exclusive to, children.

DEMOGRAPHY

From our few global population figures, there are about 600 million primary school age children in the world. I will double that number as a working estimate of all school age children. That figure will be subdivided into 960 million for developing countries and 240 million for highly industrialized countries.

From our global epidemiology we know that, usually, the caries prevalence for highly industrialized populations lies between six and 11 DMF teeth per 12 year old child and that preventive programs have reduced these levels to as little as 2.5 to three DMF teeth. If we estimate an average of eight DMF teeth and moderate prevalence of periodontal disease for the present population, on the assumption that effective prevention has so far touched only a small part of the world's population and if we consider three DMF teeth and low prevalence of periodontal disease is a reasonable, conservative eventual goal, we can look at what those disease levels mean for the highly developed part of the world.

On the other hand, let us take three DMF teeth and moderate prevalence of periodontal disease as a working estimate of the present average for 12 year olds in developing countries, knowing that in some the caries average is less than one while in others there are means well above the working estimate. We can then look at what it will mean to the developing world if the caries average is maintained by prevention and the periodontal disease prevalence lowered, or if there is inadequate prevention and the caries average changes to eight DMF teeth as it did many years ago in the highly developed countries, while periodontal disease prevalence remains the same.

Scientific literature on the cost of oral health care is very patchy indeed, even where there are comprehensive, well-defined services such as incremental school dental services. What does exist shows that oral health is very expensive in highly industrialized countries, consuming from four to five per cent right up to 11 per cent of all health expenditure. Beyond this sort of indication, the literature does not permit any detailed exposition of past and present costs and, even if it did, there would remain the problem of different and fluctuating currencies as well as comparable real value estimates when compared to salary structures and cost of living.

However, we have an excellent indicator of costs in manpower ratios which we shall now consider, leaving each one free to apply to the manpower requirements thus indicated estimates of costs related to any specific situation. It is clear that even ratios approaching one dental operator (dentist or operating dental auxiliary) to 1,000 in countries where caries prevalence is high, have not managed to keep whole populations in a state of optimal oral health (although in some situations very successful restoration and rehabilitation has been achieved). International Collaborative Study data for New Zealand (**Table 9**) Norway and Denmark illustrate this point. Moreover, in New Zealand prior to successful prevention of dental caries, a ratio of one dental operator to 450 primary schoolchildren was required to achieve the most comprehensive dental repair of a school population yet measured. Let us allow a small leeway for the latter figure and assume that, at the unchanged level of eight DMF teeth per 12 year old child and moderate periodontal disease prevalence, ratios of 1: 1000 overall and 1: 500 for incremental school dental services are necessary to have a chance of maintaining quasi oral health by the curative/restorative/rehabilitative approach. These ratios indicate that 3.5 million dentists or operating dental auxiliaries would be needed for this purpose.

Table 9	Trondelag	Canterbury	Aarhus
F	11	10	7
D	1	1	<1
M	<1	<1	<1
DMF	13	11	8

(Prepared at WHO 1979

In school dental services 1.2 million of those dental personnel would be needed for primary school alone if comprehensive incremental care were to be provided and about as many again if the service extended to secondary school and there was full scholarization. These requirements are set out by highly developed/developing subdivisions in **Table 10.** Just for good measure, those requirements would be increased per annum from this year by 125,000 with virtually all of that increase directed towards the school dental services. At present there are about 580,000 dental personnel

Table 10

Estimation of Dental Personnel Needed If No Preventive Programs are Implemented

Country	Total Population Coverage	Manpower Ratio	School Population	School Ratio
Developing DMFT = 8 P D Moderate	2,800,000	1 : 1,000	1,920,000	1 : 500
Industrialized DMFT = 8 P D Moderate	700,000	1 : 1,000	480,000	1 : 500
Global Totals	**3,500,000**	—	**2,400,000**	

(Prepared at WHO 1979)

in the world, 492,000 in highly developed countries and 91,000 in developing countries.

For populations with a mean of about three DMF teeth per 12 year old and low prevalence of periodontal disease, the WHO draft manual on planning of oral health services has worked out a manpower requirement based on a 'prevention first' approach, specially intensive for schoolchildren and integrated with other services as well as with manpower production. The simple structure of any plan for oral health services in that Manual is: (1) Preventive Programme (including health education); (2) Target Group Services (particularly school dental services); (3) Demand Services for all non-targetted sectors of the population; (4) Manpower production in amount and kind; (5) Monitoring and evaluation.

Each of the five parts has measurable goals over a ten year period. Assumed achievement of these goals in each part affects the plan and requirements for all the other parts.

The dental operator ratio for this type of plan at the level of three DMF teeth and low periodontal disease prevalence per 12 year old child is 1: 4,200. All operating pesonnel could be dentists, but in fact the preferred plan is for only one dentist to each two operating dental auxiliaries, leaving a dentist to population ratio of 1: 12,500. The dental operator ratio needed for the school dental service at this disease level is proposed at 1: 2,700 approximately, (most operating personnel being auxiliaries).

In the following estimates, it is assumed full scholarization in primary and secondary school and present world population estimates totaling 3,500 million (of which 2,800 million live in developing countries), are used.

Table 11

Estimation of Numbers of Dental Personnel Needed to Treat Present Oral Diseases

Countries	Total Population	Overall Ratio	School Population	School Ratio
Developing DMFT = 3 Periodontal Disease Moderate	700,000	1:4,000*	356,000	1:2,700
Industrialized DMFT = 8 Periodontal Disease Moderate	700,000	1:1,000	480,000	1:500
Global Totals	**1,400,000**	—	**836,000**	—

Prepared at WHO 1979

* Adjustment of Ratio to allow for Treatment of Moderate Periodontal Disease

Recalling the assumption that at present average caries prevalence for the industrialized countries is eight DMF teeth at 12 years and for developing countries three DMF teeth, both having moderate periodontal disease prevalence, the world's present manpower requirements can be estimated as given in **Table 11.**

We can see the world's dental manpower shortage is not of crisis proportions, if optimal distribution can be attained. That shortage would be dramatically less if the decreases now occurring in caries prevalence in many industrialized countries spread to all such populations and achieved the developing country mean of three DMF teeth per 12 year old, while no change in caries prevalence occurred in developing countries and both subdivisions attained the low prevalence level for periodontal disease. An intriguing aspect of the figures in **Table 12** is that many highly developed countries would then find themselves with a massive excess of dental manpower. The first signs of that situation have already appeared in a number of countries.

There is one more possibility. Prevention to the developing country caries mean estimate of three DMF teeth may be achieved for all highly industrialized countries, while increase to the highly industrialized caries mean estimate of eight DMF teeth might well occur in all developing nations (**Table 13**).

All calculations in **Tables 12-13** can be criticized as an oversimplification and can be varied up and down by making different assumptions or varying the strategy. However, simplicity has been a guiding principle.

I believe that in this material is a simple shocking message that should not be hidden and would not be

Table 12

Estimation of Dental Personnel Needed if Preventive Programs are Implemented in Both Developing and Industrialized Countries

Countries	Total Pupulation Coverage	Manpower Ratio	School Population	School Ratio
Developing DMFT = 3 Periodontal Disease Low	667,000	1 : 4,200	256,000	1 : 2,700
Industrialized DMFT = 3 Periodontal Disease Low	167,000	1 : 4,200	8,900	1 : 2,700
Global Total	**834,000**		**445,000**	

(Prepared at WHO 1979)

Table 13

Estimation of Dental Personnel Needed if Industrialized Countries Implement Preventive Programs and Developing Countries do not

Countries	Total Population Coverage	Manpower Ratio	School Population	School Ratio
Developing DMFT = 8 Periodontal Disease Moderate	2,800,000	1 : 1,000	1,920,000	1 : 500
Industrialized DMFT = 3 Periodontal Disease Low	167,000	1 : 4,200	89,000	1 : 2,700
Grand Totals	**2,967,000**		**2,000,000**	

(Prepared at WHO 1979)

materially changed by variations in strategy and assumptions — provided they are practical. While the direct health aspect is an important part of that message, I may be offending a sacred cow in suggesting the real bombshell is economic with an indirect health impact. Whatever alternative is considered in the four sets of conditions, it is necessary to put "flesh on the bones" of the simple manpower figures provided, by applying an average salary or income, an allowance for support staff and mean estimates of facilities, equipment, training and administrative costs when one wishes to consider a specific population, system and currency.

Only then can there be a real appreciation of the savings of preventive methods we know do work. Only then will the enormity of poor planning (which might allow developed nations to slip into a manpower excess situation because disease trends were not monitored or the system was too unwieldy to react to a change) be evident. Almost every part of success or failure at this crucial time will be mediated through the child population. Our prevention of caries, periodontal diseases and dentofacial anomalies must be installed and practised in childhood. Our restorative/rehabilitative efforts can only efficiently and effectively support preventive efforts if a comprehensive school service is the foundation pillar of those efforts. I am convinced, from our own International Collaborative Sudy as well as from observation in many countries, that better systems must develop to extend the benefits of prevention and restoration to adult populations. Some features of those systems are surely an extension of school dental services throughout secondary and tertiary years, development of dental services in industry and establishment of wide-reaching third party payment systems.

Unfortunately, for most countries, such an extension is merely an academic discussion at present. There are just a few countries which have comprehensive school services upon which they could soundly build such an extension. Instead of the concept of extension there are a number which have some of its features without the preventive and restorative coverage for children from which to extend. Thus the foundation for lifetime oral health is often lost before the individual is at the stage of deciding for himself how to use available "extension" services. There are also the majority of countries where there are neither comprehensive services for children nor adequately available services for adults.

I said the message was shocking, economically, and indirectly in health. It is, to the extent that a few favored countries are likely to have millions of dollars worth of highly trained personnel either in excess of, or inappropriate to, their population's needs (492,000 at present whereas the need could be 167,000). while most countries run the risk of incurring, collectively, billions of dollars of extra dental care costs per year if they fail to act now. The scenario from experience of the highly industrialized world is a grim one. It goes something like this: (1) pain and discomfort cause demand unrelated to the overall importance of oral conditions to mortality and morbidity; (2) massive expenditure is the outcome, depriving other health and non-health sectors of much needed funds; (3) despite the massive expenditure, the low priority or oral conditions in antagonism to the demand prevents sufficient expenditure

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to develop truly comprehensive oral health services; (4) realization dawns that disability has increased despite a progressively crippling cost of oral health services, that the services themselves are not achieving any clearly defined goals for improvement in health and that prevention is the only solution; (5) preventive services become effective and, because of inadequate planning, excess and inappropriate manpower exists.

If you think these five steps are purely elements of a piece for the comedy theatre, you should look critically at the history of highly industrialized countries. Though there is some variation in approach and achievement, they have all faithfully followed those steps. A few are just passing into stage five, many are in stage four or are entering it and some are still floundering in stage three. The signs are there. Despite our knowledge and capabilities, developing countries are following those mournful steps which could raise their dental operator needs for the restorative approach to 2,800,000, plus adjustments for population increases, compared with the present 84,000.

I said the message is simple. It is so simple that, perhaps, people find it boring. We know from our data that by use of fluorides systemically and/or by group supervised individual topical application, caries can be reduced at least to the level of three DMF teeth per 12 year old child. There are enough data to indicate we can have large preventive effects on periodontal disease by sound oral hygiene. These are two very simple procedures which would reduce the need or potential need for dental manpower by at least a factor of four. I am convinced that is a conservative estimate and that, therefore, one could hope for and dream of much better.

The simple, essential, boring message is that routine preventive procedures achieve much more than restoration or rehabilitation at less cost. The problem is not just an oral health matter. Because of the huge economic impact, it is necessary that all health authorities recognize the consequence of inaction or badly directed action. In this Year of the Child, and beyond it, let us resolve to practise and promote prevention of oral disease in a concerted, ongoing, planned effort, for the betterment of mankind.

Dr. David Barmes is chief, Oral Health, World Health Organization, Geneva, Switzerland.

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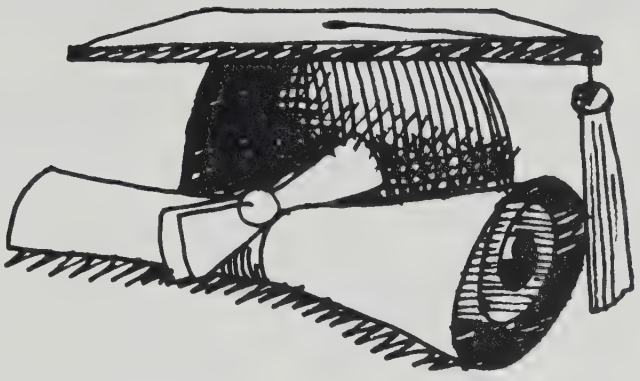

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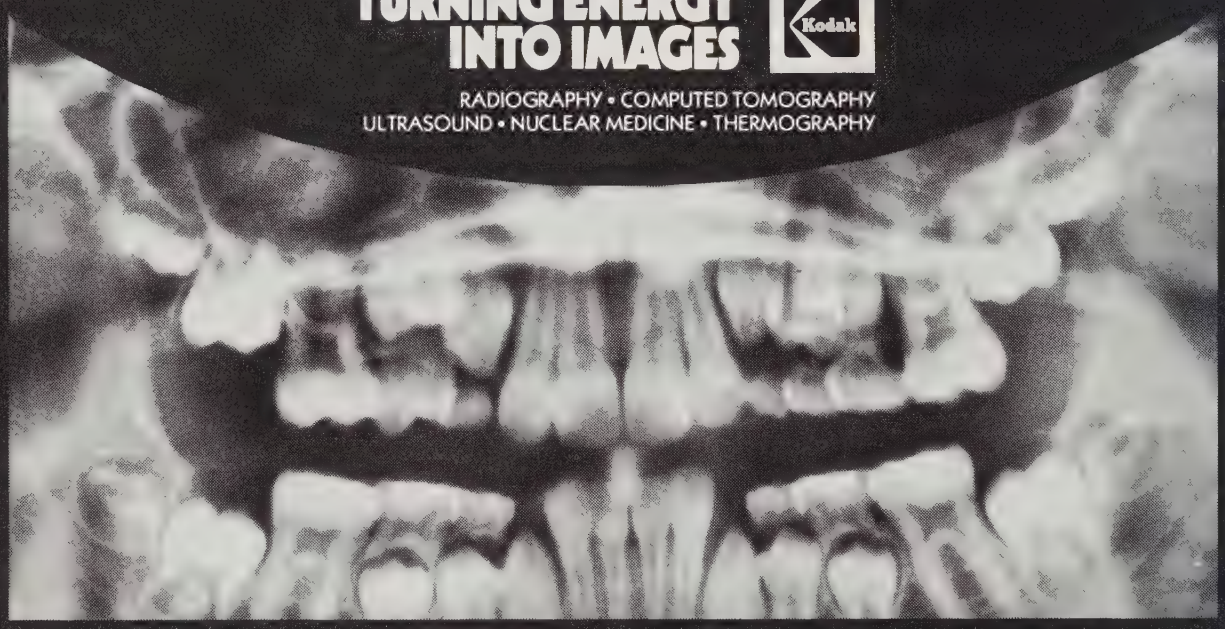

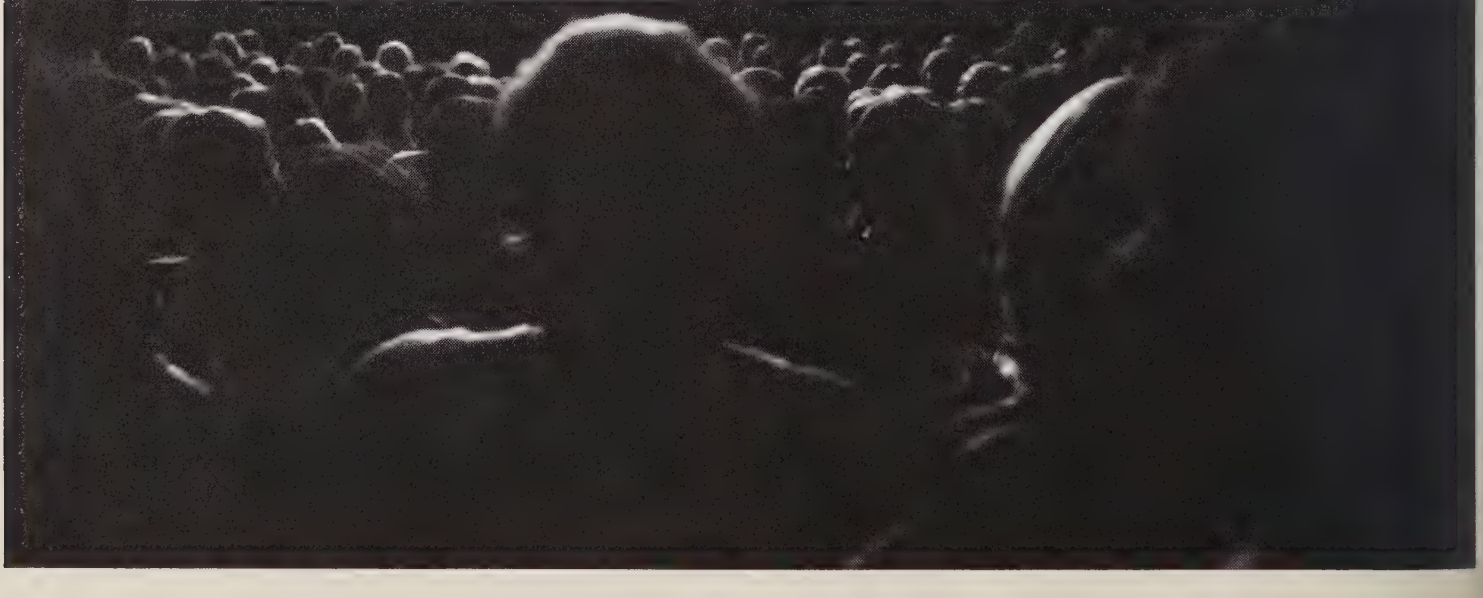

Etiology of dental caries

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Stony Brook, New York

Dental caries is a bacterial disease that results in the formation of cavities. The tooth surfaces attacked by the bacteria are generally those most difficult to keep free of bacteria present as adhering deposits called dental plaque. Dentition sites where plaque is found most are also the sites where food entrapment occurs.

W. D. Miller[1] was the first to provide scientific evidence that acid produced by the oral bacteria during the fermentation of carbohydrate is responsible for the demineralization of the tooth and initiation of the caries lesion. Without carbohydrate, no acid was formed. With carbohydrate, the acid formed was sufficient at least in test-tube experiments to decalcify the dental hard tissues. At the time, there was no evidence that enamel contained any protein. This was not the case for the dentine of the tooth and so, proteolysis after decalcification, was proposed as the means of removing the organic material of this tissue.

When it was later shown by histological techniques that enamel contained a small amount of organic matrix,[2] theories of proteolysis became popular. These proposed that removal of the predominantly protein matrix of the enamel by the oral bacteria was the primary step in the dental caries process and not acid decalcification. According to these theories, the mineral remaining after matrix destruction, is removed either by physical disintegration or by solubilisation by complexing or chelating molecules derived mostly from enamel protein or plaque degradation products. The pros and cons and historical development of these theories have been reviewed.[3] Because very little scientific evidence has been provided over the last several decades in their support, which contrasts with the almost overwhelming amount of evidence that has accumulated for acid decalcification, the various proteolytic theories are now largely ignored by most caries researchers.

SOURCE OF THE CARBOHYDRATE FERMENTED BY THE PLAQUE BACTERIA

Except for a small amount that comes from salivary mucoprotein, fermentable carbohydrate responsible for acid formation comes from the diet in the form of sugars or starchy foodstuffs. Starchy foods that are most cariogenic are those easily retained on the teeth and include pastries and bread. In such carbohydrates, the starch is rapidly hydrolyzed by salivary amylases[4] to maltose which is then degraded by oral bacterial maltases[4] to glucose. Although there is very little if any free glucose in saliva, considerable amounts are available from the starchy foods and from bacterial hydrolysis of sucrose to glucose and fructose. Although pure cultures of the oral bacteria degrade glucose and fructose faster than sucrose and in turn than starch,[5] with the mixed bacteria and saliva both present,[6] degradation and acid formation proceed at comparable rates.

It is widely believed that foods containing sucrose are more cariogenic than those that are starchy. Some of this is due to the fact that sugar-containing foods are solubilised more easily and can produce higher levels of fermentable carbohydrate in the mouth than most starchy foods.[7] However, the latter can often stick to the teeth more readily and this prolongs their period of availability for acid formation by the oral bacteria. It is possible, therefore, that both types of carbohydrate are important in the caries process. Of greater importance is the fact that both can be fermented, that both can be cariogenic and that the more frequently either kind of fermentable carbohydrate enters the oral cavity in a 24-hour period the more often an acid environment will be present and the caries process activated.[8]

Finally, salivary mucoprotein contains some carbohydrate which is easily fermented;[9] but in most individuals, the acid produced is sufficient to decrease the pH somewhat but not enough to cause acid decalcification. This carbohydrate, by favoring a more acidic pH than if none were present could be important in flora selection[10] and as part of mucoprotein, in the formation of dental plaque.[11,12]

STEPHAN PH TEST CURVE

An important observation was made when Stephan[13] showed all plaques, in both caries-active and caries-free individuals, decrease in pH following a sugar challenge. The pH curve produced by this test is generally referred to as the Stephan curve (**Fig. 1**). The rapid pH decrease occurs because the bacteria in dental plaque produce acid from fermentable carbohydrate at a faster rate than the acid can diffuse out of the plaque and be carried away by the saliva.[14,15] While the Stephan curve is similar in shape in both caries-active and caries-free subjects, its position on the pH scale is different (**Fig. 2**). The same is true for plaques in caries active and caries free dentition sites, for example those on the maxillary and mandibular incisors[13,18] (**Fig. 2**). The caries-free Stephan curve starts higher, does not reach as low a pH minimum, and often shows a more rapid pH return.

Stephan's observations have been confirmed by others[19,18,20] and made it evident that cariogenic

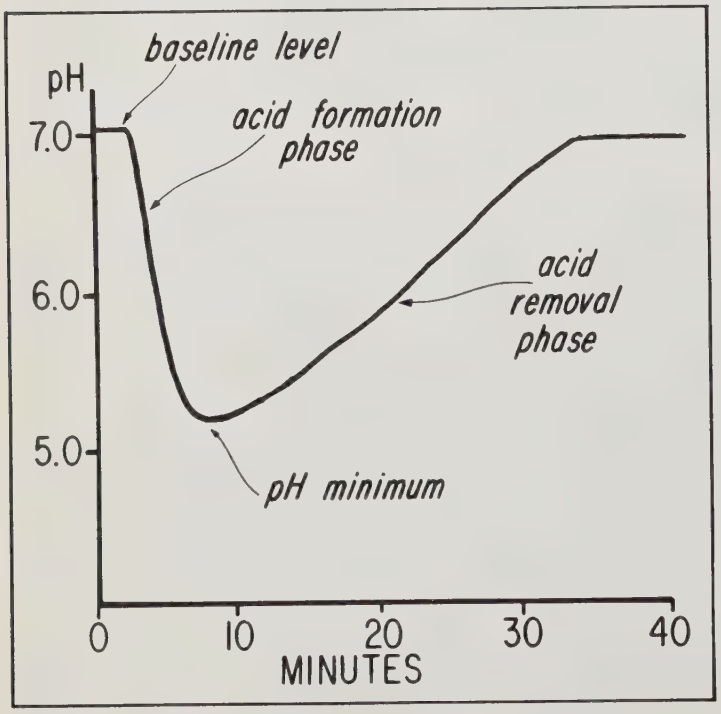

Fig. 1. Stephan pH test curve.

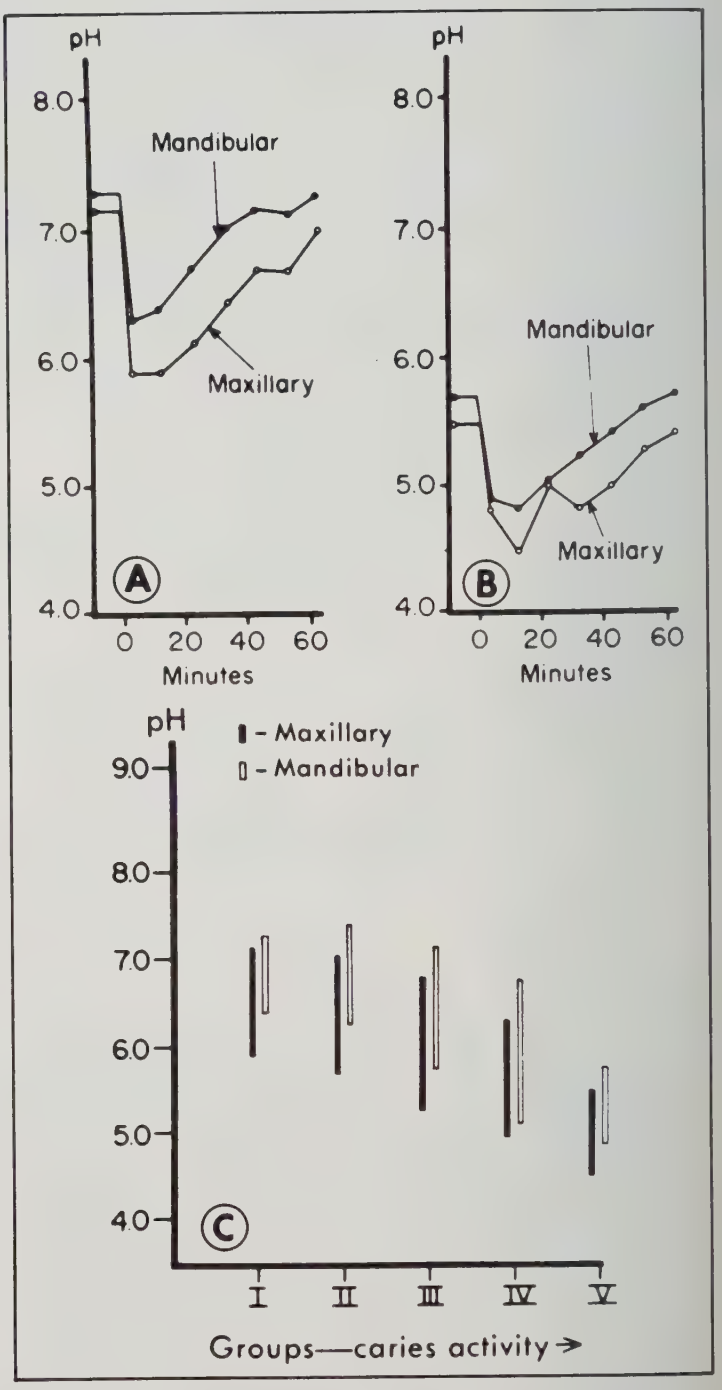

Fig. 2. Relation between plaque pH and caries activity. Figures A and B[13] are test curves for a caries-free and a caries-active group of subjects, respectively. Figure C[17] shows the pH range for the five groups of subjects studied by Stephan[13]. The pH range is the difference between the pH minimum and the starting pH.

plaques are those that can decrease in pH below a certain critical level when challenged with carbohydrate. The critical pH corresponds to a level of acid that needs to be reached in the plaque before the hydroxyapatite of the enamel can dissolve and produce a caries lesion. Hydroxyapatite, one of the mineral forms of calcium phosphate, is not only the main mineral substance of enamel but also of dentin and cementum. It is poorly soluble at neutral or alkaline pH and becomes progressively more acidic.[21]

Other support for the critical pH concept was the confirmation by Englander et al[19] that groups of subjects of different caries activities show different Stephan test curves and different plaque levels of lactic acid. Two caries-free groups, one, the natives living in the Kalahari Desert and the other, a group of Americans between the ages of 17 and 23, showed Stephan curves where the average pH minimum was 6.3 and 6.4, respectively. The plaques of a corresponding group of caries-active American subjects were lower and showed an average minimum pH of 5.4 (**Fig. 3**). The plaque lactate levels in these subjects were also determined and from the plaque pH and the Henderson-Hasselbach equation[22] the lactic acid levels were calculated. These showed clear differences between the caries-active and caries-free groups and suggested that the critical pH may be within the range 5.2 to 5.7 (**Fig. 4**).

FACTORS RESPONSIBLE FOR THE STEPHAN TEST CURVE

Because of the consistent pH differences between plaques that are cariogenic and those that are not, attempts have been made to identify the factors responsible for the characteristics of the Stephan test curve and how the curve relates to the critical pH.

Using pure cultures, Stephan and Hemmens[5] showed quite clearly, that number of bacteria has a major influence on the pH; the more bacteria present, the easier it is for acid to build-up and cause the pH to fall to more acidic levels. This was subsequently confirmed by Stralfors[14] with pure cultures of oral bacteria in a gel matrix constructed to simulate the physical structure and properties of plaque and by Kleinberg[23] with the mixed bacteria in saliva and by Singer [24] with the mixed bacteria in plaque.

Stephan and Hemmens also showed that different bacterial species of the oral flora produced different Stephan test curves.[5] Some showed a rapid pH fall and a rapid pH rise. Others showed a slow fall, while others showed a slow rise or none at all. They concluded that many of the bacteria found in the mouth vary both in their ability to form acid and in their ability to remove acid. Both characteristics are seen at low sugar concentrations. At high substrate levels, the acid consumption or pH-rise phase is prevented from occurring because most of the bacteria are able to continue to form acid and at significant and comparable rates. Stephan and Hemmens further showed that the fall in pH is less if buffers are present or if the bacteria are able to produce base from urea.

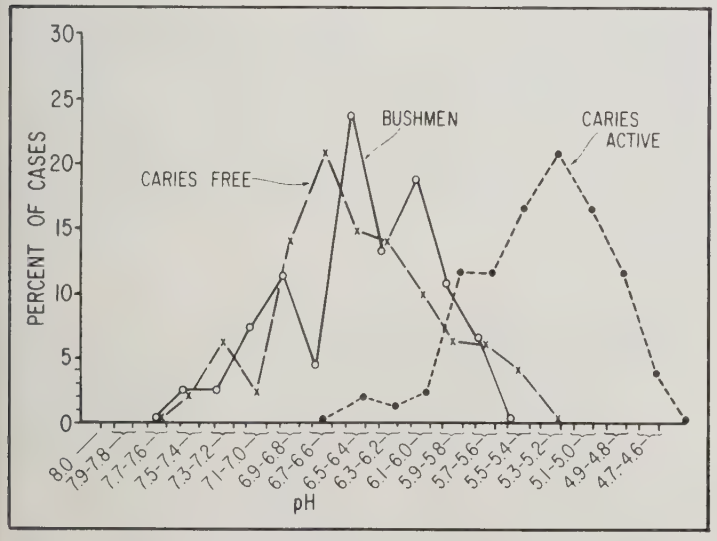

Fig. 3. Distribution of pH minimums of Stephan test curves in three groups of subjects-two caries free groups and one caries active.[19]

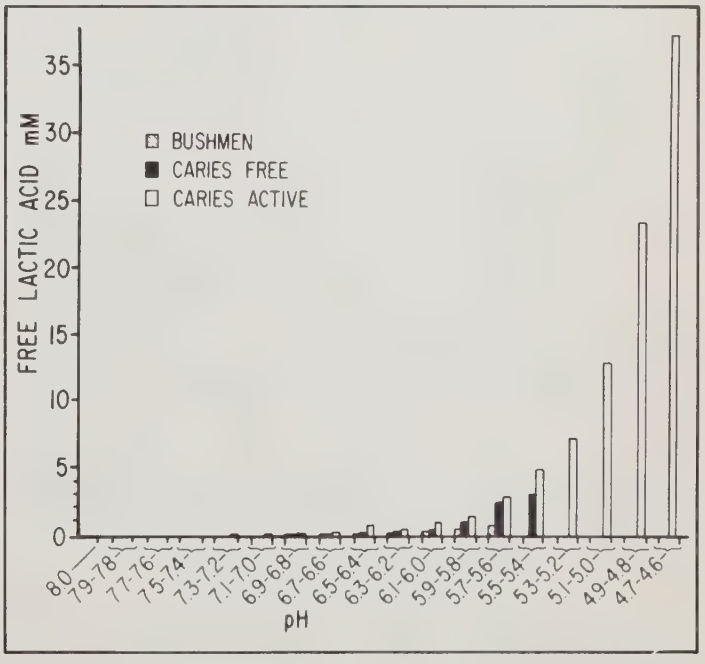

Fig. 4. Distribution of plaque lactic acid levels in three groups of subjects-two caries free and one caries active.[19].

Stralfors[14] in his studies demonstrated how a high concentration of bacteria and the gel-like structure of the dental plaque leads to acid accumulation and a rapid pH fall like that seen in the mouth. The former ensures rapid acid formation; the latter ensures that the acid can not diffuse out of the plaque rapidly. By controlling the amount of carbohydrate available to the bacterial plaque *in situ,* the carbohydrate availability was shown to determine both the extent of the pH fall and if and when the pH would subsequently rise.[15] In fact, carbohydrate availability and displacement of the pH from neutrality shows a clear cause and effect relationship.

COMPOSITION OF PLAQUES WITH DIFFERENT PH-TEST CURVES AND DIFFERENT CARIOGENICITIES

Maxillary incisor plaques have a more acidic Stephan pH test curve than corresponding plaques on the mandibular incisors.[13,18] Because this difference is remarkably consistent and is related to the obvious difference in the caries activity of these two regions of the dentition, comparison of their microbial and chemical composition has been ideal for study and has provided much important information about caries-active and caries-free plaques.

Also the microbial composition of plaques in the two regions differ.[10] Maxillary plaques where the pH is more acidic show a higher frequency of isolation of lactobacilli and S. mutans than mandibular plaques whereas the latter where the pH is more alkaline showed a higher frequency of isolation of gram negative filaments such as fusobacteria. In other studies, mandibular plaques showed a higher incidence of ureolytic bacteria[25] than maxillary plaques, as well as higher levels of ammonia,[26] consistent with their higher pH.

Mandibular plaques also have higher levels of calcium and phosphorus than maxillary plaques[27] which are present as components of brushite and apatite.[27,28] This difference in composition is probably related to mandibular plaques calcifying more readily and becoming clinical calculus. Interestingly, children and adolescents, who are known to have higher caries activities than adults show lower plaque calcium and phosphorus levels.[29] Lower levels of both have been shown to be inversely related to caries activity.[30,31]

PLAQUE CALCIUM PHOSPHATE AND ITS RELATION TO THE CRITICAL PH

The calcium phosphate in plaque can be acquired in two ways. One is simply by the diffusion of calcium and phosphate ions from saliva or crevicular fluid (or even the tooth under certain conditions) into the plaque where it can accumulate as calcium phosphate.

The other is deposition of these ions as part of a salivary carbohydrate-protein aggregate. This aggregate has recently been identified as a large mucoprotein molecule with an associated peptide[32] having an animo acid composition like that of Statherin.[33] The peptide, Statherin, has the property of preventing the calcium phosphate of this aggregate from changing from its amorphous or poorly crystalline form to a form that is highly crystalline and poorly soluble.[34] This would reduce its availability as a substitute for the calcium phosphate in the tooth and instead of the calcium phosphate being protective, it would now accumulate as clinical calculus.

The calcium phosphate carbohydrate-protein (CPCP) aggregate forms in saliva as the pH rises above neutrality,[32] a condition that always occurs when saliva is stimulated.[35] Presumably, this is the way and the time when this material is deposited and would result in the plaque being supplied on a regular, albeit intermittent basis. The likelihood of this material coming from saliva is strongly supported by the observation that the few x-ray diffraction lines sometimes seen in this aggregate are the same ones seen in early plaque *in situ.*[27,29]

The role of the CPCP material in plaque is believed to be two-fold. First, it contributes large molecular weight material to the intercellular plaque matrix and helps hold the bacteria together.[36,37,38] Second, it provides a reservoir of readily available calcium and phosphate to protect the tooth against solubilisation.[39,40] Because it is amorphous or poorly crystalline, the reservoir material will consist of smaller calcium phosphate crystals than in enamel and therefore have a larger surface area.

As a consequence, any acid produced during carbohydrate fermentation, will solubilise this calcium phosphate rather than that in the enamel. It should be noted that the differences in the two calcium phosphates would not be necessarily because of a difference in their solubilities as defined by a solubility product constant but rather because of a difference in their solubilisation rates.[41]

BACTERIA IN THE CARIES PROCESS

It is well established that bacteria are absolutely essential for the dental caries process.[42] Which bacteria are involved is still the subject of debate.[17,43,44] Some investigators believe that only one or a few specific bacterial types are responsible for the caries process[43,44] which is presumed to occur by these bacteria infecting specific tooth sites, multiplying rapidly and pro-

ducing the acids that cause cavity formation when carbohydrate becomes available. These researchers believe that cavities only occur when these specific bacteria are present. The bacteria implicated in the 1930's and 1940's was Lactobacillus acidophilus[45] and in more recent years, the organism implicated by the proponents of this theory has been S. mutans.[46]

Other investigators[17,47] disagree with this view because most bacteria present in the mouth produce acid from fermentable carbohydrate.[5] They believe that an excess of such carbohydrate causes a shift in the bacterial population of the plaque to a composition where there are more stronger than weaker bacterial acid-formers. They argue, therefore, that the elimination of a few bacterial types that comprised only a minor percentage of the plaque population would hardly affect the acid-forming capability of the plaque. The association of bacteria such as the lactobacilli and S. mutans with caries activity is attributed to the ability of these organisms to survive under the acidic conditions found in plaque when carbohydrate is in excess.[10]

Determining which of these two viewpoints is important-since the approach to effect a cure is different depending on which is correct. If caries is an infection caused by one or a few specific microorganisms, then the development of a vaccine against these bacteria would be a reasonable goal to pursue. However, if the desease is the result of a flora composition shift largely as a result of the conditions, especially acidic pH favoured by excess carbohydrate, then one would have to look to oral environmental factors to effect a cure. In the latter situation, a vaccine would not succeed simply because there are too many bacteria able to produce acid and one would need too many vaccines.

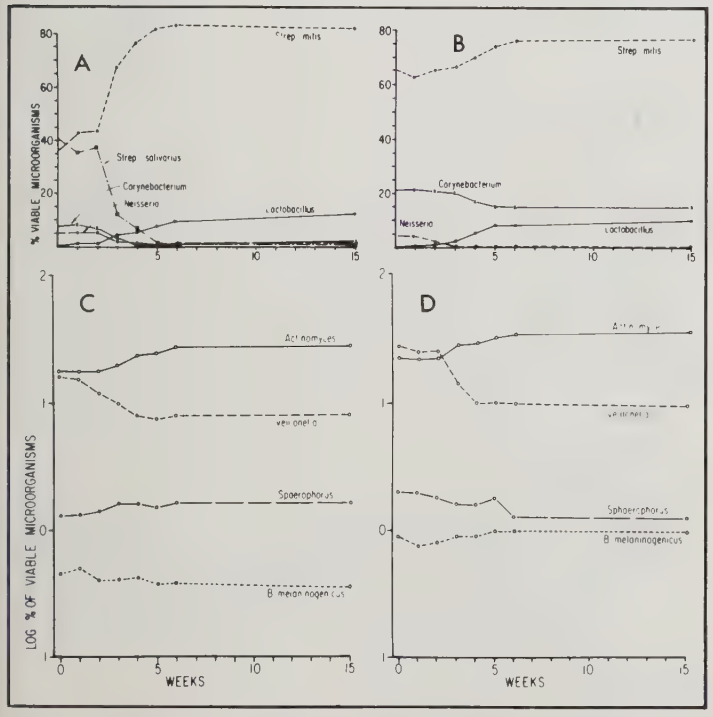

Fig. 5. Changes in the microbial composition of saliva (A and C) and of plaque (B and D) with development of xerostomia in subjects who received irradiation for oro-pharyngeal tumors.[51,52]

MODIFYING THE STEPHAN CURVE-CRITICAL PH RELATIONSHIP

If plaque could be completely removed from a tooth surface, no Stephan curve would be seen[48] and no caries lesion would occur. Although this is possible to achieve on some tooth surfaces, on others, it is not. These are the poorly accessible dentition sites where caries lesions readily occur, they include the pits and fissures of the occlusal surfaces of the molar teeth, the approximating surfaces and the enamel surfaces adjacent to the gingivae. For this reason, chemical and bacteriological methods are being explored which might result in a non-cariogenic flora.

One method is to develop antibacterial or antiplaque agents which will reduce the number of bacteria. The fewer the number the smaller the fall in pH. This is the

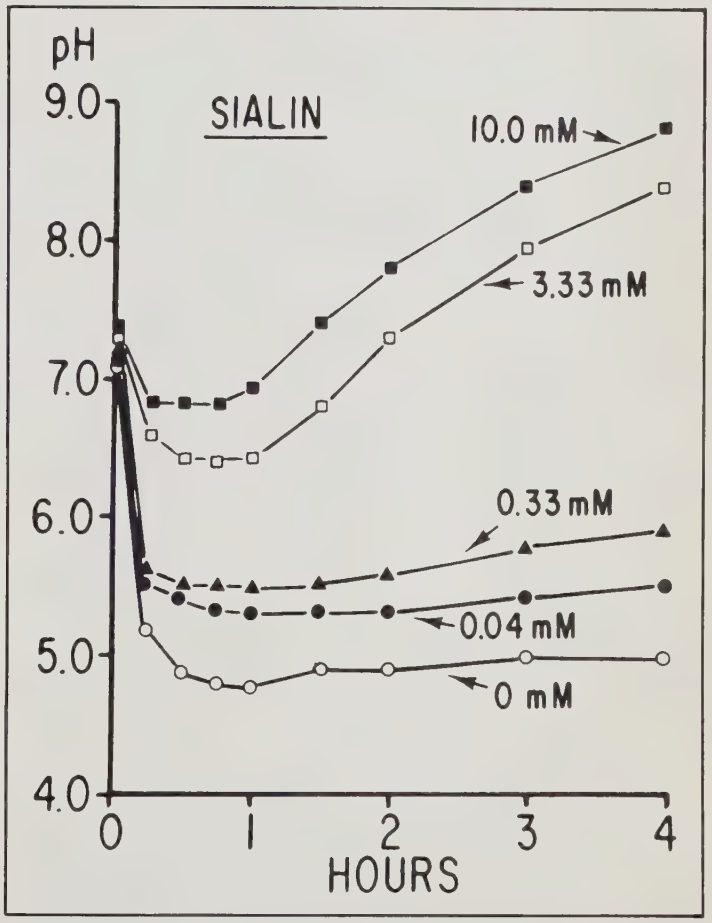

Fig. 6. Effect of different levels of the tetrapeptide, Sialin (glycylglycyllysyl-arginine) on the Stephan pH test curve produced in the salivary sediment test system[23,16] (from Kleinberg[64])

Fluoride has been shown in many studies to reduce dental caries One of its effects is to lower the rate of solubilisation of enamel

main reason there has been so much research in recent years devoted to elucidation of the mechanisms involved in plaque formation.[11,12,27,36,37,43,44,49,50]

A second approach to reduction of the pH fall is control of the microbial composition of the plaque flora. A bacterial population low in acidogenic bacteria should give a caries-free rather than a caries-active Stephan test curve. To achieve this is a difficult task at the present time, since not enough is known about the fundamental ecology of the oral cavity. However, studies on saliva have been helpful in providing some answers.

A dramatic shift in the composition of the plaque and salivary floras has been seen in xerostomia, where the flow of saliva has stopped or is severely reduced.[51,52,53] The salivary pH falls and the bacterial flora shifts to one containing a higher proportion of the more cariogenic types (**Fig. 5**). The opposite occurs when patients have to be fed only by tube and saliva is the only material that contacts the plaque bacteria.[54] The plaque pH becomes alkaline and the plaque flora becomes less acidogenic.

Fluoride has been shown in many studies to reduce dental caries. One of its effects is to lower the rate of solubilisation of enamel.[41] This would have the practical effect of lowering the critical pH especially if the pH does not remain too low for too long. Fluoride can also affect bacterial acid formation[55,56] and possibly the composition of the bacterial flora, favoring one that is less acidogenic.[57,58]

Saliva can have a major effect on the Stephan curve-critical pH relationship because of its considerable influence on both the plaque pH and plaque-saliva solubility conditions. In the presence of saliva, the Ph does not fall as low and it rises sooner.[59] The effect of saliva on the pH is complicated, however. On the one hand, it stimulates sugar utilization and as a result, the rate of acid formation;[60,61] this would favour a greater fall in the plaque pH. On the other, saliva contains buffers[62] that neutralize some of the acid formed and most important, provides nitrogenous substrates, mainly urea[63] and arginine,[64] from which the bacteria can rapidly produce base and raise the pH.

Arginine, like the other common amino acids, is present in saliva at very low concentration and is provided, instead, in the form of peptide or salivary protein both of which can easily be hydrolyzed by the oral bacteria.[65] Small peptides enter the bacteria rapidly where they are hydrolyzed by intracellular peptidases[66] and those containing arginine provide this amino acid for degradation by the arginine dihydrolase pathway.[64] The result is the formation of ammonia and the amine, putrescine, both of which can assist in raising the pH. Tests with an arginine-tetrapeptide isolated from saliva, Sialin (**Fig. 6**), and a number of small arginine-peptides have shown these to be effective and more so than free arginine.[64]

The studies with Sialin and the arginine peptides have indicated a new approach for controlling the plaque pH. Now, it may be possible with these compounds to counteract the effect of fermentable carbohydrate which lowers the pH and favors a cariogenic flora. Obviously, the time of day and the appropriate vehicles for administration need to be determined before it may be possible to change a caries active Stephan test pH curve to that of the caries free individual.

Table 1

Fluoride inhibition of the pH decrease in dental plaques in vivo

Concentration of fluoride (P.P.M.)	Minimum of control pH curve	Minimum of test pH curve	Inhibition in pH units
1000	4.9	6.0	1.1
500	5.0	5.6	0.6
100	5.1	5.7	0.6
10	4.8	5.1	0.3

From Stralfors.[14] Control pH curves were produced by rinsing first with a glucose solution and monitoring for 60 minutes. This was followed by the test pH curve carried out in the same way but with the glucose solution containing the fluoride levels shown.

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Etiology of Periodontal disease

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PLAQUE

"Bacterial plaque seems to be the most consistent one factor in the etiology of gingivitis and periodontitis".[1]

This concept has been supported by data from epidemiological surveys of humans,[2,3] and clinical trials in dogs[4,5] and humans.[6,7,8] Epidemiological data consistently showed large positive correlations between the severity of periodontal disease and the amount of debris and calculus when the latter were added together to form the Oral Hygiene Index.[9] Unfortunately, this was interpreted to incriminate plaque, whereas the correlation between the Oral Hygiene Index and the severity of periodontal disease was due entirely to the calculus component of the index. The correlation coefficients of loss of periodontal attachment with oral hygiene index was .30, with debris index .02, and with calculus index .39.[10] Correlations do not prove cause and effect, but the experimental gingivitis procedure[11] has proven that plaque accumulation is responsible for marginal gingivitis in healthy mouths of adults. Clinical trials[6,7,8] did not study the effects of removal of plaque without removal of calculus, and, since the progress of periodontal destruction was slight in the groups studied,[6,7] it was difficult to assess what benefits were attained. The plaque indices used in surveys of groups and in clinical trials measure the amount of supragingival plaque.

MICROORGANISMS

Current thought stresses that microorganisms are the primary etiologic agents of the various forms of periodontal disease.[12,13] Although plaque consists largely of microorganisms, not all subgingival microorganisms are located in plaque. Recent investigations[12,14] have concentrated on subgingival microorganisms, especially those adjacent to the soft tissue which are not adherent to the teeth. This does not mean that subgingival plaque and factors favouring its retention are not important; on the contrary, roughness of surfaces which promotes the accumulation of plaque and interferes with its removal appears to be an important predisposing factor in the initiation and progress of destructive periodontal disease. Rough surfaces retaining plaque in humans include dental calculus, grooved or pitted tooth surfaces, carious lesions and subgingival margins of restorations — especially when deficient. To retain plaque in experimental animals, silk or cotton ligatures are used.[14,15,16]

Evidence implicating microorganisms includes the effectiveness of antibiotics, and the ineffectiveness of factors other than bacteria in induction of periodontal

In vitro studies have identified several pathways that might lead to the pathologic tissue alterations.

disease. Subgingival ligatures produce gingivitis and progressive periodontitis in subhuman primates,[14] dogs,[15] and rats,[16] but not in germ-free rats.[16] Repeated occlusal trauma does not cause pocket formation or loss of attachment in the absence of accumulated microorganisms.[17] Hormonal imbalance, malnutrition and debilitating diseases did not produce inflammatory periodontal disease in the absence of bacteria.[13,18] Antibiotics are very effective in humans in eliminating acute periodontal inflammatory lesions in which microorganisms invade the local tissues, such as lateral abscesses and acute necrotic ulcerative gingivitis. Excellent results with tetracycline and spiramycin[19,20] have frequently been obtained in the treatment of chronic destructive periodontitis.

The concensus of opinion has been that the major difference in microorganisms from normal and periodontally diseased humans is in the quantity of the bacteria.[21,22] However, recent studies have demonstrated qualitative differences in bacteria of healthy and diseased sites[23] and in various types of periodontal disease.[12] Hence, current thought supports Box' concept of 35 years ago[24] that specific microorganisms are related to destructive periodontal disease. Coccoid bacteria predominate at normal sites,[23] Actinomyces in early gingivitis, Gram negative anaerobic motile rods in periodontitis, Bacteroides melaninogenicus and spirochetes or "corroding" bacteria in rapidly advancing periodontitis, and Gram negative fusiform-shaped rods of the genus Capnocytophaga similar to Bacteroides ochraceus in periodontosis.[12] Although it has not been fully established that these or other bacteria cause periodontal disease, the current hypothesis is that microorganisms are responsible, and that the disease can be classified as infectious.[13]

However, chronic periodontitis differs from classic infections in that the microorganisms are not found within the inflamed lesions, even though they can and do gain access to the bascular system to produce transient bacteremia, and, although periodontal disease can be induced in rats and hamsters by bacterial transmission,[12,13] periodontal disease does not appear to be transmitted along the usual routes in humans. For example, dentists and hygienists do not show a high prevalence of the disease.[13]

Viable oral microorganisms elaborate numerous substances capable of damaging tissues,[25] including collagenase, hyaluronidase, fibrinolysin, chondroitin sulfatase, neuraminidase, DNAse and RNAse, proteases and metabolites. In addition, dead microorganisms release noxious cellular components such as endotoxins, mucopeptides and polysaccharides, may accumulate in cementum, breakdown extracellular substances and induce cytotoxic effects in the epithelium and connective tissue.

Even though the microorganisms do not invade the local tissue, there is evidence that their noxious products do penetrate the epithelium and gain access to connective tissue in both normal and inflamed gingiva. Endotoxins and antigens from plaque microorganisms as well as antibodies specific for plaque antigens have been identified in the connective tissue of inflamed gingiva.[26,27] The permeability of the epithelium of the sulcus may be increased by bacterial enzymes. However, this epithelium already has wide intercellular spaces resulting from the influence of the underlying lymphoid cells which accumulated at the time of tooth eruption. Hence events at eruption may predispose sulcus epithelium to easy penetration and lack of keratinization.

In contrast, skin epithelium has both keratin and a permeability barrier — the latter existing independent of the keratin.[28] Fibers do act as a barrier in capsules around bacteria in some chronic diseases, but this does not occur in the periodontium. Usually, complete loss of epithelial continuity with ulceration of the epithelium and exposure of connective tissue occurs opposite calculus deposits, and it rarely involves the junctional epithelium[18] which remains normal near its apical termination.

TISSUE REACTIONS

Current data indicate that substances derived from microorganisms are pathogenic because of their capability to activate certain host defence mechanisms which, in turn, are responsible for most of the pathologic tissue alterations of periodontal disease.[13,29] Normally functioning active host defence mechanisms are necessary for the maintenance of a healthy periodontium and, classically, have been considered to be defensive and protective to the host; but they have a potent offensive and destructive capability as well.

In vitro studies have identified several pathways that might lead to the pathologic tissue alterations. Substances from microorganisms can interact with several types of cells.[13,29] Plaque contains numerous antigens as well as potent B-cell mitogens. Antigens can activate previously sensitized B- and T-lymphocytes to stimulate blastogenesis resulting in production of lymphokines, differentiation of mature antibody-producing plasma cells, differentiation of cells capable of destroying cells

Systemic factors predispose local tissue to increased susceptibility to damage from local noxious factors . . .

carrying the antigen, and memory cells. Many of these responses can also be induced by mitogens in nonsensitized lymphoid cells. Lymphoid cells, especially B-lymphocytes and plasma cells, predominate in the inflammatory periodontal lesions. Transformed lymphoid cells may release an osteoclast-activiting factor which causes bone resorption, and chemotactic factors that attract neutrophils and monocytes. Activated monocytes release lysosymes, collagenase and, perhaps, protoglandins which can lead to reduced formation of collagen fibers and bone, and increased resorption of bone.[13,29] Whether or not these substances participate in inflammatory lesions has not been established.

Decreased formation and increased resorption can result from altered tissue turnover in the absence of host defence reactions as demonstrated by the atrophy occurring around a tooth losing its function. This loss in structure does not result in pockets or lower level of attachment. The rapidity of the collagen turnover in the periodontium[30] increases its vulnerability to genetic, hormonal, nervous and nutritional deficiencies, and to the effects of debilitating disease and aging. These factors also influence the active host defence reactions. The systemic factors predispose the local tissue to increased susceptibility to damage from local noxious factors and modify the nature and intensity of the defense reactions.

THE CHILD

Systemic Factors

The impact of systemic factors on the periodontium is most evident in the child. Nine genetically-transmitted syndromes in children have fibrous gingival enlargement as one of their characteristics, and destructive periodontitis has been reported in another seven genetic diseases.[31] In addition, a chromosomal aberration, a familial disease, an intoxication, and three cellular diseases predispose to severe periodontal disease in children. These diseases affect specific tissue components which are relevant to destruction of the periodontium. There is porosis of bone in acroosteolysis, deficiency of collagen [3] in Ehlers-Danlos syndrome, deficiency of alkaline phosphatase and catalase enzymes in hypophosphatasia and catalasia respectively, deficiency of haemoglobin in erythroblastic anemia, defective leucocyte lysosomes in Chediak-Higashi syndrome, deficient leucocyte functions in Downs' syndrome and periodontosis, deficiency of leucocytes in cyclic neutropenia, excess of leucocytes in leukemia, excess of histiocytes in Histiocytosis X, excess of keratinization in hyperkeratosis palmoplantaris, and excessive mercury in acrodynia.[31]

Adolescent children have edematous enlargement of the gingiva which peaks in prevalence and severity near the time of puberty and then decreases during the remaining "teen" years.[18] Gingival enlargement associated with mouth breathing is more prevalent in children than adults and fibrous gingival enlargement promoted by dilatin intake is more severe in young people.

Local Factors

Plaque-evoked gingivitis does not develop readily in children[32] compared to adults[11] or to the elderly, who react the most vigorously.[33] The periodontal index for most well-nourished Western populations rarely exceeds a score of 3 which suggest gingivitis rather than periodontitis is present in most of the populations studied. It is not known whether some humans are resistant to periodontitis,[13] but about 20 per cent of experimental beagle dogs did not develop periodontitis even though plaque and calculus accumulated.

The long-standing assumption that gingivitis inevitably progresses to destructive periodontitis is currently being challenged and found to be unsubstantiated.[13] Similarly, the assumption that chronic destructive periodontitis has its inception as a gingivitis in childhood is open to question. In children, the inflammatory cell composition in gingivitis induced by plaque is different than in adults;[32] the intraoral sites susceptible to gingivitis in children differ from the sites susceptible to destructive periodontitis in adults; and periodontal involvement from local factors in children usually is transient and reversible rather than progressive, irreversible and accumulative, and tends to result in tissue enlargement instead of significant tissue loss.

Factors which predispose to difficulties in plaque control in adults arise in childhood. Abnormal tooth shape, position, contacts, and the sequelae of caries in childhood can make plaque removal difficult in adult life. However, the most important factor contributing to the growth and accumulation of plaque is the failure or inability of the individual to maintain adequate daily mechanical plaque removal. The attitudes and motivation necessary for good plaque control seem to be instilled very early in life by the parents and are consistent with a family life style which values preventive maintenance procedures. If this outlook is not transferred early in life, it is difficult to instill in adulthood.[34]

It is tempting to teach children the scrub method of toothbrushing because it was found to be the most effective in plaque removal in children. However, when this method is carried over into adult life it can lead to recession of thin, exposed gingiva. Although recession rarely results in tooth loss, it is a prevalent type of loss of buccal periodontium in Western countries,[35,66] whereas destructive periodontitis is more severe in Eastern countries.[2,36]

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Etiology and treatment need of **Malocclusion**

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In the field of orthodontics the prevalence of malocclusion has been stated to be close to 100 percent[1], and need for orthodontic treatment has been claimed to exist in 70-75 percent of 10-12 year old children [2,3]. The wide ranges in frequency of malocclusion that have been reported, however, even within the same population, indicate shortcomings in methodology rather than sophistication. Thus the most important step towards comparability of epidemiologic malocclusion studies is the standardization of recording methods[4].

The major objectives of orthodontic epidemiology are not merely to describe the distributions of malocclusion in various populations, but to analyze the data with a view to identifying etiologic factors and assessing need for orthodontic treatment. Progress towards these objectives has been hindered by the belief that malocclusion can be perceived as an entity or that an exhaustive classification of malocclusion can be made into a limited number of types, e.g. Angle's classes. In fact, the term "malocclusion" is a common concept of a great number of individual morphologic deviations from an ideal norm, which may occur in a practically infinite number of combinations[5]. A comprehensive classification of malocclusion must therefore be based on the single morphologic traits.

Joint efforts by the WHO and FDI, based on previous principles for the definition and recording of individual traits of malocclusion[6,7], have presently led to the development of a "Basic Method for Recording Occlusal Traits"[8]. This method is intended to provide a standard morphological basis for studies of the prevalence of malocclusion in various parts of the world.

Current epidemiologic methods may contribute to the clarification of the interplay of genetic and environmental factors in the etiology of malocclusion. It is a common belief that the prevalence and severity of malocclusion increase in domesticated animals and in man living under the conditions of modern industrial society[9,10]. On the basis of Begg's[11] studies of ancient Australian

OCCLUSION DENTAIRE IMPARFAITE

On ne connaît pas encore de façon irréfutable tous les effets nocifs possibles d'une occlusion dentaire imparfaite, explique le Dr Sven Helm, professeur d'orthodontie à l'Institut d'orthodontie du Collège royal de dentisterie, à Copenhague, Danemark. L'orthodontiste responsable de décider si un traitement s'impose doit donc tenir compte de tous les facteurs en cause, non seulement de ceux qui sont bénéfiques au patient. En d'autres termes, dans les cas où la nécessité d'un traitement n'est pas catégoriquement établie, on pourrait souvent donner à l'enfant le bénéfice du doute et ne pas le soumettre à un traitement. Par contre, lorsque la mauvaise occlusion est indubitablement nocive, soit parce qu'elle est prononcée ou que l'enfant y est particulièrement susceptible, le traitement devrait être accessible à tous, indépendemment de leurs moyens financiers.

aboriginal skulls, Begg and Kesling[12] attribute the frequent occurrence of anomalies of occlusion and space conditions in modern populations with refined dietary habits mainly to lack of pronounced occlusal and interproximal attrition. These authors formulated the concept of "attritional occlusion" as opposed to "textbook normal occlusion".

In different races it is difficult to distinguish between the differences in malocclusion frequency caused by genetic differences and those due to superimposed variations in living conditions. This investigation was undertaken to compare the frequencies of certain occlusal traits between two Danish samples which, presumably, are similar genetically. Nevertheless these samples are separated in time by five centuries and, thus, differ fundamentally with respect to living conditions. Moreover, comparison is made with frequencies of the same traits among present-day Australian Aborigines.

SAMPLES AND METHODS OF ANALYSIS

Three samples were selected, two comprising contemporary individuals, i.e. Danes and Australian Aborigines respectively, and one consisting of medieval Danish skulls. All subjects had reached dental stage DS 4-M2 or DS 4-M3 according to the definitions of Björk, Krebs and Solow[7], that is, full permanent dentition. In each sample subjects who had lost permanent first molars were omitted.

The present-day Danish sample included 1258 persons (574 boys and 684 girls) aged 11-18 years. This sample has been described in detail elsewhere[5,13].

The medieval sample comprised 143 skulls originating from burial sites in Denmark from the middle of the 12th to the middle of the 16th century. No sex discrimination was attempted. Heavy tooth attrition was a characteristic feature of this sample, which has also been described earlier[14]. Ages-at-death estimated from mandibular molar attrition were between 11 and 20 years.

The Australian aboriginal sample consisted of 230 persons (115 boys and 115 girls) of the Wailbri tribe, aged 10-22 years, who were selected at random at Yuendumu settlement, Central Australia, in 1965. Tooth attrition in this sample was very moderate compared with medieval sample, but considerably more pronounced than in modern Danes.

All registrations were performed by the author using the classification and method of registration evolved by Björk et al.[7] As sex-specific frequencies of malocclusion were not available for the medieval sample, frequencies in the two contemporary samples were taken as the averages of the frequencies for males and females. The reliability of the registration method has been reported previously[15].

RESULTS AND DISCUSSION

The frequencies of hypodontia (excluding the third molar) and tooth malformation, which are probably genetically determined[16,17], were similar in the two Danish samples **(Table 1)**. The frequencies of congenital absence are probably on the low side in both samples, since in some questionable cases of each sample, teeth were recorded either as extracted or lost ante mortem. In the Australian Aborigines hypodontia was somewhat less common, while malformation occurred more frequently; the differences are not statistically significant. In all three samples reduction in size of the maxillary lateral incisor (pegshape) was the predominant malformation.

Most of the anomalies of occlusion **(Table 2)** showed significantly higher frequencies in present-day Danes compared with the two other samples, especially extreme maxillary overjet, distal molar occlusion, deep bite, and scissors bite (buccal crossbite), while lingual crossbite and midline displacement showed more moderate differences in frequency. Mandibular overjet, mesial molar occlusion, and open bite, on the other hand, were almost equally uncommon in the three samples. No significant difference was observed between the frequencies for the medieval Danes and Australian Aborigines.

A remarkably similar pattern was observed as far as the prevalence of crowding is concerned **(Table 3)**. In each dental arch, both in the lateral and incisor segments, crowding occurred significantly more often in contemporary Danes, while the frequencies were almost similar in the two other samples.

Obviously, the major orthodontic problems of modern society were uncommon in Danes of the Middle Ages as well as in contemporary Australian Aborigines. Nevertheless, all the traits occurred in each sample and, thus, genetic factors supposedly involved in initiating the various traits of malocclusion seem to have been acting in all samples. It is therefore of particular interest to identify the conditions contributing to the modification of the frequencies of malocclusion in the latter samples.

The population in Denmark has been relatively unaffected by migration and has probably been quite stable genetically for many centuries. Presumably the observed differences between the Danish samples related mainly to exogenous influences, primarily the marked occlusal and interproximal attrition in the Middle Ages, due to vigorous chewing of coarse and tough food often contaminated by grit and ashes[14]. Moreover, in contrast to the situation among modern Danes, secondary crowding from premature loss of primary teeth due to caries did not occur in the medieval sample. The resulting abolition of occlusal lockings and the favorable space conditions allowed for unimpeded continual eruption and mesial migration of the teeth[12]. Thus, compensatory dentoalveolar development in relation to the various patterns of facial growth would be facilitated by the improved conditions for adaptation of the paths of eruption of the teeth and the ensuing forward shift of the mandibular dental arch[18].

Table 1

Percentage frequencies with standard error (s.e.) of hypodontia and malformation in modern and medieval Danes and in Australian Aborigines.

	Modern		Medieval		Australian	
	%	s.e.	%	s.e.	%	s.e.
Hypodontia	5.9	0.7	6.3	2.0	3.5	1.2
Malformation	2.0	0.4	0.7	0.7	3.5	1.2

Table 2

Percentage frequencies with standard error (s.e.) of anomalies of occlusion in modern and medieval Danes and in Australian Aborigines.

Anomaly	Modern		Medieval		Australian	
	%	s.e.	%	s.e.	%	s.e.
Extreme max. overjet	14.7	1.0	2.8	1.4	5.2	1.5
Distal molar occlusion	26.0	1.5	9.1	2.4	7.0	1.7
Mandibular overjet	0.6	0.2	1.4	1.0	0.4	0.4
Mesial molar occlusion	3.9	0.6	4.2	1.7	3.0	1.1
Deep bite	17.7	1.1	7.1	2.2	3.5	1.2
Frontal open bite	2.1	0.4	0	—	2.2	1.0
Crossbite (lingual)	12.8	0.9	6.3	2.0	7.8	1.8
Midline displacement	16.7	1.1	9.1	2.4	7.4	1.7
Scissors bite	8.5	0.8	0.7	0.7	1.3	0.8

Table 3

Percentage frequencies with standard error (s.e.) of crowding in modern and medieval Danes and in Australian Aborigines.

Region	Modern		Medieval		Australian	
	%	s.e.	%	s.e.	%	s.e.
Maxilla or mandible	42.0	1.4	26.6	3.7	24.8	2.9
Maxilla	23.5	1.2	10.6	2.6	11.4	2.1
Maxilla, incisor	16.5	1.1	9.9	2.6	9.9	2.0
Maxilla, lateral	11.5	0.9	2.2	1.2	3.1	1.2
Mandible	33.3	1.3	22.7	3.5	17.8	2.5
Mandible, incisor	21.8	1.2	16.9	3.2	13.2	2.3
Mandible, lateral	23.4	1.2	13.0	2.9	10.0	2.0

In other Danish medieval subjects Helm and Prydso[19] found considerably increased frequencies of mesial molar occlusion and crossbite, as would be expected as a result of unimpaired forward shift of the mandibular lateral segments. Mandibular overjet, on the other hand, did not become more frequent with age, and the majority of the heavily worn dentitions apparently had attained a functional equilibrium at the edge-to-edge stage as described also in ancient Australian aboriginal skulls[11,20].

Australian Aborigines display considerable racial differences in craniofacial morphology compared with contemporary Scandinavians[21]. The diet of the present aboriginal sample was approaching that of modern industrial society, but the food was still being prepared mostly in shelters in the open, permitting admixture of abrasive substances. Accordingly, the dentitions were worn to a greater extent than in present-day Danes, but attrition was less marked than in the sample from the Middle Ages.

The present study does not afford the possibility to determine whether the conspicuous differences in malocclusion prevalence between contemporary Danes and Aborigines were due to differences in race or in living conditions. Clinch[22] has approached the problem by comparing two small groups of Aborigines in different environments and found higher frequencies of malocclusion among the inhabitants of a small town compared with those in a reserve.

It seems likely then that lack of vigorous masticatory function and dental attrition are responsible for a high proportion of the prevalent traits of malocclusion in modern Caucasian society. Obviously, it would be unrealistic to aim at a reduction in this prevalence by attempting to similate "attritional occlusion", for example by prescribing chewing gum containing carborundun powder[12] or by grinding the bread grain on old millstones. However, to infer that the majority of modern children need orthodontic treatment or reduction of tooth substance by extraction would be jumping to conclusions.

NEED FOR ORTHODONTIC TREATMENT

When various orthodontists are asked to assess need for treatment in the same children, they usually arrive at high and fairly consistent frequencies[23,13]. This is true whether subjective estimates or allegedly objective indices of malocclusion are used. Such agreement seems to stem from a common recognition of occlusal traits and a common desire to eliminate these deviations from "textbook normal occlusion", rather than from a common conception of the adverse effects of the traits.

Since "textbook normal occlusion" is rare, "attritional occlusion" is unattainable, and more or less marked traits of malocclusion are the rule, it would be wise to reconsider the aims of orthodontic care. It cannot be the task of the orthodontic profession to assist commercial adver-

tisers in the conceptualization of dental beauty as idealized conformity of appearance. The aim of an orthodontic service should be to improve physical and socio-psychological well-being of the population, not necessarily to produce normal occlusions. Or, in other words, orthodontic treatment is needed only if the traits present imply, or with reasonable certainty are expected to imply, a threat to well-being. Before deciding on orthodontic treatment, consideration should therefore be given as to whether the traits will predispose the subject to increased risk of the following conditions: (i) Tissue destruction (due to caries, periodontal disease, trauma or root resorption); (ii) Disturbances of physiological function (TMJ disorders, muscular dysfunction, speech defects, masticatory disturbances); (iii) Socio-psychological disturbances.

Relationships between certain malocclusion traits and some of these potential risks have been demonstrated in the literature; but documentation in this field, based on systematic research is still lagging far behind the highly developed orthodontic services of many countries. One reason for this regrettable situation is that some of the adverse effects of malocclusion may manifest themselves late, sometimes not before adult age, necessitating prospective epidemiologic studies which are more complicated and time consuming than cross-sectional ones.

In view of the so far incomplete evidence of the various adverse effects of malocclusion the orthodontist responsible for deciding on indications for treatment should, of course, also keep in mind aspects of the treatment, other than those which are beneficial to the patient, for example, iatrogenic tissue damage[24] and discomfort of wearing appliances. In other words, when indication for orthodontic treatment is questionable, the child may often be given the benefit of the doubt — and be let alone. Treatment of obviously harmful malocclusions, on the other hand, either because they are indeed severe or because the patient is particularly susceptible, should be available to all, independently of ability to pay.

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Announcements

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canada

Canadian Dental Association, 1980 National Convention, Halifax, Nova Scotia, July 13-16, 1980. Contact: Dr. T.D. Ingham, Nova Scotia Dental Association, P.O. Box 604, Halifax, N.S. B3J 2R7.

L'Association Dentaire Canadienne, Congrès national 1980, Halifax, Nouvelle-Écosse, 13-16 juillet 1980. Pour renseignements: Dr T.D. Ingham, Association Dentaire de la Nouvelle-Écosse, B.P. 604, Halifax, N.-É. B3J 2R7.

April

Ontario Dental Association 113th Annual Spring Meeting. The Sheraton Centre, Toronto, Ontario, April 27-30, 1980. Contact: Mrs. W.C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P1.

May

British Columbia College of Dental Surgeons 1980 Convention, Hyatt Regency Hotel, Vancouver, May 27-31, 1980. For further information, please contact: Venue West Ltd., 1704 — 1200 Alberni Street, Vancouver, B.C. V6E 1A6, phone: (604) 681-5226.

Les journées dentaires du Québec, Queen Elizabeth Hotel, Montreal, Quebec, May 25-29, 1980. Contact: Doctor Morton Lang, 5253 Décarie, Suite 210, Montreal, P.Q. H3W 3C3.

July

Canadian Academy of Restorative Dentistry Annual Scientific Sessions, Chateau Halifax, Halifax, Nova Scotia, July 11-12, 1980. Contact: Dr. D.C.T. MacIntosh, Scientific Chairman, 200 Medical Arts Building, 5880 Spring Garden Rd., Halifax, N.S. B3H 1Y1.

Canadian Academy of Prosthodontics, Halifax, Nova Scotia, July 11-12, 1980. Contact: Dr. B.M. Jackson, secretary-treasurer, 22-22 Water St. South, Kitchener, Ont. N2G 4K4.

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see Announcements next page

Obituaries/ Nécrologies

WYLIE, Geoffrey John, graduated University of Toronto, 1965. Died in Geelong, Victoria, Australia, September, 1979. Aged 40 years.

MILNE, J.A., graduated Dalhousie University, 1920. Formerly of New Glasgow, Nova Scotia.

WILLIAMSON, K.G., of Rothesay, New Brunswick, graduated Tufts University, 1918.

ROSS, G.R., of Fredericton, New Brunswick. Graduated University of Toronto, 1923.

SMITH, Jean, décédé 18 septembre, 1979 à L'Orignal, Ontario.

MAITLAND, J.H., graduated University of Toronto, 1929. Died September, 1979.

HUOT, Jean-Louis de Montréal, Québec. Décédé 3 octobre, 1979.

DEWAR, A.S. of Geraldton, Ontario. Died October, 1979.

GIBB, George H., died October, 1979. Director of Student Admission, Faculty of Dentistry, University of Alberta. Born in Cardston, Alberta, Dr. Gibb was inducted as a Fellow of the Royal College of Dentists (Canada) in September, 1979. Graduated University of Alberta Dental School, 1952. Dr. Gibb is survived by his wife Verda, daughters, Elizabeth and Patricia and sons, Kent and Ronald.

Dr. George H. Gibb

WILLS, J.N., died October, 1979. Formerly of Niagara Falls, Ontario.

COOK, Alonzo Lorenzo, formerly of Windsor, Ontario. Died October, 1979.

Announcements

First Ever Yukon Dental Convention, Whitehorse, Yukon Territory, to be held in conjunction with Rendezvous, February 22-23, 1980. Contact: Dr. R. Pearson, 309 Wood St., Whitehorse, Yukon Territory.

International

January

International Dental Conference in The Alps, Courcheval, France, January 19-February 2, 1980. Contact: L.W. Bryer, 24 Cadogan Square, London, S.W.1., England.

16th Annual Dental Convention of the Jamaica Dental Association, Montego Bay, Jamaica, January 27-31, 1980. Contact: Basil Keane, 40 Union Square, Kingston, Jamaica, W.1.

East Coast District Dental Society, Miami Winter Meeting, Fontainebleau Hilton, Miami Beach, Florida, February 1-3, 1980. Contact: Barbara Sims, Executive Director, East Coast District Dental Society, 420 South Dixie Highway, 2-E, Coral Gables, FL 33146, U.S.A.

February

American Academy of Dental Practice Administration, Chicago, IL, U.S.A., February 14-16, 1980. Contact: Mrs. Virginia M. Savage, 15609 Meadow Park Dr., Sun City, AZ 85351, U.S.A.

American Academy of Crown and Bridge Prosthodontics, Chicago, IL, U.S.A., February 16-17, 1980. Contact: Dr. John H. Emmert, 25801 Lakeshore Blvd., No. 113, Euclid, OH 44123, U.S.A.

American Academy of Restorative Dentistry, Chicago, IL, U.S.A., February 16-17, 1980. Contact: Dr. H. Ward Fountain, 435 Whitcomb St., Kalamazoo, MI 49001, U.S.A.

12th European Dentists Continuing Education Congress, Davos, Switzerland, February 18-29, 1980. Contact: Jennifer Sherwen, Swissair, Montreal (514) 879-1330 Helga MacGregor, Swissair, Toronto (416) 960-1100.

March

San Diego Dental Medical Symposium, Aspen, Colorado, U.S.A., March 1-8, 1980. Contact: Mr. Daman Nelson, 110 W "A" St., San Diego, CO 92101, U.S.A.

Health, New Orleans, Louisiana, U.S.A., March 6-9, 1980. Contact: Dr. Eugene W. Lewis, 4604 S. Harvard, Tulsa, OK 74135, U.S.A.

Third International Conference on Dental Electrosurgery, Miami, Florida, U.S.A., March 7-8, 1980. Contact: Dr. Jacob Kline, School of Engineering and Environment Design, University of Miami, P.O. Box 24894, Coral Gables, FL 33124, U.S.A.

Eighth Australian Orthodontic Congress, Perth, Australia. March 23-29, 1980. Contact: Hon. Secretary, Australian Society of Orthodontists, 179 St. George's Tce. Perth, W.A. 6000, Australia.

The Bermuda Dental Association Spring Meeting, Bermudiana Hotel, Hamilton, Bermuda, March 24-25-26, 1980. Contact: The Secretary, The Bermuda Dental Association, P.O. Box 785, Hamilton 5, Bermuda. Phone: (809) 292-7676.

April

First World Biomaterials Congress, Baden, near Vienna, Austria, April 8-12, 1980. Contact: Mrs. E. Maurer, Medical Academy of Vienna, Alser Strasse 4, A-1090 Vienna, Austria.

International Congress of the Panamerican Association of Periodontology, San Juan, Puerto Rico, April 15-20, 1980. Contact: Benjamin Vargas, G.P.O. Box 70175, San Juan, Puerto Rico 00936.

May

Schweizerische Zahnarzte-Gesellschaft (SSO), Interlaken, Switzerland, May, 1980. Contact: Franz Plattner, Chefredaktor des Bulletins, Ottoplatz 21, 7000 Chur, Switzerland.

American Academy of Oral Pathology, San Antonio. Texas, U.S.A., May 12-16, 1980. Contact: Dr. Arthur Miller, School of Dentistry, Temple University, 3223 N. Broad St., Philadelphi, PA 19140, U.S.A.

Academy of Denture Prosthetics, Daytona Beach, Florida, U.S.A., May 18-23, 1980. Contact: Dr. William R. Laney, Dept. of Dentistry, Mayo Clinic, Rochester, MN 55901, U.S.A.

Tenth International Meeting on Dental Implants and Transplants, Bologna, Italy, May 23-25, 1980. Contact: Professor G. Muratori, Gruppo Italiano Studi Implantari Sezione Congressi, Gia S. Gervasio 1, 1-40121, Bologna, Italy.

American Academy of Pedodontics, San Francisco, California, U.S.A., May 24-27, 1980. Contact: Miss Merle C. Hunter, 211 E. Chicago Ave., Chicago, IL 60611, U.S.A.

June

Eighth International Conference on Oral Biology, Tokyo, Japan, June 1-3, 1980. Its theme will be: Oral Disease Prevention — its implications and applications. An interesting study tour program in Japan, China and Thailand is being arranged in connection with the conference. Contact: Dr. George S. Beagrie, University of British Columbia, Faculty of Dentistry, 2075 Westbrook Place, Vancouver, B.C. V6T 1W5.

Symposium on the Prevention in Stomatology, Dolny Kubin, Czechoslovakia, June 5-7, 1980. Contact: Prim. MUDr. V. Ťažandlák, Dúnz — Dolny Kubin, Nemocnična ul. 4, 026 14 Dolný Kubin, Czechoslovakia.

58th Iadr Congress, Osaka, Japan, June 5-8, 1980. Contact: Dr. Yojiro Kawamura, Osaka University Dental School, 32 Joan-cho, Kitaku, Osaka, 530 Japan.

Seventh International Conference on Oral Surgery, Trinity College, Dublin, Ireland, June 23-26, 1980. Contact: Professor I.A. Findlay, Chairman, Organizing Committee, Seventh International Conference on Oral Surgery, 12 Pembroke Park, Dublin 4, Ireland.

86th Meeting of the American Dental Society of Europe, Stratford-upon-Avon Hilton, Stratford-upon Avon, England, June 24-28, 1980. Contact: The Secre-

tary, Dr. Brian J. Parkins, 57 Portland Place, London W1N 3AH, England.

Fifth International Congress of Dento-Maxillo-Facial Radiology, Portland, Oregon, U.S.A., June 28-July 2, 1980. Contact: Dr. Walter H. Fox, 1400 Mill Street, Eugene, OR 97401. U.S.A.

July

British Dental Association Centenary Meeting, London, England, July 10-11, 1980. Contact: R.B. Allen, secretary, British Dental Association, 64 Wimpole Street, London W1M 8A1, England.

August

New Zealand Dental Association Jubilee Conference 1905-1980, Dunedin, New Zealand, August 25-29, 1980. Contact: The Conference Secretary, P.O. Box 647, Dunedin, New Zealand.

Fédération Dentaire Internationale, International Dental Show. Hamburg, Germany. August 25-September 7, 1980. Contact: M. Jean-Pierre Schweizer, sales manager. Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 309, Toronto, Ont., Can., M5H 1L9.

September

Fédération Dentaire Internationale, 68th Annual World Dental Congress, Hamburg, Germany, September 2-7, 1980. Contact: Dr. R. Braun, Bundesverband der Deutschen Zahnärzte, Universitaisstrasse 73, 5000 Koln 41, Germany.

Federation of Prosthodontic Organizations, Chicago, Illinois, U.S.A., September 15-16, 1980. Contact: Mr. Eric M. Bishop, Suite 1636, 211 East Chicago Ave., Chicago, IL 60611, U.S.A.

October

Third National Convention and III International Conference of Oral Health, Lima, Peru, October 1-4, 1980. Contact: Dr. Gilberto Dominguez, Av. Benavides 264-902, Lima 18, Peru, South America.

1981

Fédération Dentaire Internationale, **72nd Annual World Dental Congress,** Helsinki, Finland, August/September, 1984.

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BRITISH COLUMBIA — Nanaimo. Practice for sale in new desirable location with medical specialists and G.P.'s. Hospital in next block. All equipment, records and inventory included. Last year's gross $134,700 — 4½ day week. Owner wishes to retire. Please reply to CDA Box Number 1950.

BRITISH COLUMBIA — Southern Interior. Large practice for sale with two associates (one full-time, one part-time), hygienist, etc. Grossing in area of $450,000 per year with owner take home $170,000 on a 3½ day week, nine months a year. Only good management and financially minded dentists need apply. Present owner wishes to retire at age 40. Excellent terms to right party. Also, an excellent house to be considered. This is an opportunity of a lifetime. Are you wasting your time and energy trying to build a practice? Wasted time is costing you valuable income. Reply to CDA Box Number 1915.

BRITISH COLUMBIA — Victoria. A good starting office in the downtown area. Two operatories, hygiene area, small personal office, reception and waiting room. Quite efficient, but small with very low overhead. For further information reply to: Dr. K.M. Matheson, #426—1207 Douglas Street, Victoria, B.C. V8W 2E7.

BRITISH COLUMBIA — Victoria. For sale or lease, well established, three operatory practice in advantageously located medical-dental building. Gross $200,000. Owner pursuing graduate studies. Please reply in writing to: Hugh K. Nash, 4549 Montford Crescent, Victoria, B.C. V8N 3W6.

ALBERTA — Central. Large preventive family practice for sale or lease. Well-established office with three operatories, central suction, nitrous oxide and air-conditioning. Present staff wishes to remain. Hospital privileges available. Excellent hunting and fishing nearby. Owner retiring because of ill health. Reply to CDA Box Number 1949.

ALBERTA — Red Deer. Dental practice for sale with two fully equipped operatories. Excellent gross to overhead ratio. Desirable location across from hospital. Contact: (403) 346-7705 (office) or 346-8502 (home).

ALBERTA — Edmonton. Dental practice for sale. Ultra-modern, new, spacious office in heart of downtown. Well-established, high-quality and highly preventative practice. Sharing space with two other dentists and three hygienists. Newly decorated. Ideal opportunity for new or recent graduate. Would consider graduate of 1980 dental class. Reply to CDA Box Number 1939.

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MANITOBA — Winnipeg. Office space for lease in new building with modern dental facility designed for three dentists and presently occupied by two well-established dentists with demand for a third. In addition to shared space and facilities there are four operatories and a lab available. This is an opportunity to establish a good practice without paying good will. Contact: Dr. G.L. Funk, 230 Henderson Highway, Winnipeg, Man. R2L 1L9, phone: (204) 667-8382.

SASKATCHEWAN — For sale: Very busy group practice in a large city. Practice has five dentists and two hygienists. Owner is retiring but is willing to stay on as an associate if desired. For more information reply to CDA Box Number 1940.

SASKATCHEWAN — Kipling. Back to the country. Practice for sale or lease, in progressive town of 1,000 to 1,500, with all facilities. Building is 24' x 30'. Two operatories, can be enlarged. Have practiced for 30 years, but due to poor health must retire. Parkland area with nearest dentist 50 miles. Come and arrange your own terms, income compatable with ability and desire. Contact: Dr. A.F. Cook, Box 147, Kipling, Sask. S0G 2S0.

ONTARIO — Exceptional opportunity to purchase a fine preventive family practice well-established with high earnings and excellent personnel. 45 minutes north of Toronto in farming community with drawing area of 10,000. Two modern equipped operatories with third partially set up. Reply to CDA Box Number 1925.

ONTARIO— Don Mills. Dental office for lease. Excellent opportunity for general practitioner. Reply to CDA Box Number 1944.

ONTARIO — Hamilton. One half or all of a modern two-dentist five operatory preventive practice consisting of 2,000 sq. ft. In addition, a large basement for storage and ample parking outside. Cox, Pelton Crane chairs, nitrous oxide, automatic developer and many other extras. A rare opportunity to acquire a quality high gross practice. Reply to CDA Box Number 1932.

ONTARIO — Hawkesbury. Dental office available for rent, in new expansion to professional and commercial arcade, on main floor across hall from medical centre. Space for two operatories, private office, lab, business office and waiting room and wash closet, (625 sq. ft.). Four stores fronting the main street and in the arcade a mix of tennants including medical doctors, optometrist, dental therapist and dental technologist to come. Front and back entrance from parking lot for 160 cars. Apply to Assaly Realties Ltd., 129 Main St. E., Hawkesbury, Ont. K6A 1A2, or phone: (613) 632-2719.

ONTARIO — Southern Ontario's Golden Horseshoe, 35 miles from Toronto. Orthodontic practice, active, well-established, mainly edgewise. Excellent opportunity for immediate income. Will stay for smooth transition. Reply to CDA Box Number 1937.

ONTARIO — Toronto. Choice three-bedroom bungalow in north Willowdale — busy intersection — two TTC-lines. Combination residence and office. Generous room sizes. Separate entrance to professionally finished basement with self-contained bath and sauna. Two car garage. 10% mortgage. Contact: Karl Uhrstrom, National Trust Realtor, phone: (416) 226-3333.

ONTARIO — Practice for sale in small town. South-west Ontario. Modern four-handed set-up. Two operatories, lab, private office. Hospital privileges available. Reply to CDA Box Number 1948.

PRINCE EDWARD ISLAND — Summerside. Busy downtown dental practice for sale. Ideal opportunity for dentist wishing to enter established practice. Financing or outright sale negotiable. Immediate sale as premises must be rented by January 1, 1980. Contact: Dr. A. Doiron, phone: (902) 436-2366.

Associateship Available

ALBERTA — Pincher Creek. Associate To Join Practice (position available June 1, 1980). Associate needed to replace one dentist leaving three-man preventative practice in Pincher Creek, Alberta (30 miles north of Waterloo Park). Latest equipment, hygiene department, four-day work week. Country living with all big cities amenities. Suitable candidate eligible for partnership. Telephone: (403) 627-3290 collect or after 6:00 p.m. phone: (403) 627-4972.

ALBERTA — Calgary Northwest. Associate required for northwest Calgary office. Modern, prevention-oriented practice. Two Cox and Pelton systems for associate, nitrous oxide, Panorex, etc. Reply to CDA Box 1952.

ALBERTA — Southern. Associate wanted. Contact: Dr. Hank Griesbach, Box 1299, Fort MacLeod, Alta. T0L 0Z0. Phone: (403) 553-4455.

ONTARIO — Cambridge. Modern practice requires full-time associate. Large established patient load requires consciencious operator experienced in all phases of dentistry. The office has four operatories and Panelipse. Reply to CDA Box Number 1947.

ONTARIO — Toronto. Associate required for busy practice. Well equipped and good working environment. Great potential for industrious, patient oriented applicant. Reply to CDA Box Number 1945.

ONTARIO — Toronto. Oral surgeon with adequate training in out-patient general anaesthesia, wanted as an associate for group practice. Objective — eventual full partnership. Must have NDEB or Ontario Licence. Apply: Secretary, Oral Surgery, 168 Eglinton Avenue West, Toronto, Ont. M4R 1A7. Phone: (416) 487-5264.

QUÉBEC — Anjou. Dentiste associé demandé, pratique générale dans un centre dentaire. Correspondez avec Madame J. Gingras, Centre Dentaire Anjou, suite 225, 8001 boul. Les Galeries D'Anjou, Anjou, Qué. H1M 1W9 Tél: (514) 353-6220.

Opportunities Available

BRITISH COLUMBIA — Fraser Valley. Excellent opportunity for orthodontist in growing community, 40 miles from greater Vancouver. Reply to CDA Box Number 1946.

BRITISH COLUMBIA — Penticton. Dental hygienist required. Full-time

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BRITISH COLUMBIA — Revelstoke. Lucrative, preventive family practice for sale/lease; nestled in the scenic Columbia River Valley of eastern British Columbia. Modern efficient Cox floor plan suitable for one or two dentists with room for expansion. Excellent financial opportunity in thriving environment with unlimited recreation. Phone collect: (604) 837-5149.

ALBERTA — Rockies. Expanding tourist town requires dentist for new medical-dental clinic. Superb recreation in National Park. Reply to CDA Box Number 1941.

ALBERTA — Southern. Hygienist wanted. Contact: Dr. Hank Griesbach, Box 1450, Fort MacLeod, Alta. T0L 0Z0. Phone: (403) 553-4455.

ONTARIO — Dryden. Dental hygienist required for busy family practice. Modern fully-equipped dental office. Fishing, hunting, boating, skiing and other recreational facilities. One hour daily flight from Winnipeg and Thunder Bay. Reply in writing to: Box 419, Dryden, Ont. P8N 2Z1.

ONTARIO — Toronto. Paedodontist required for busy Paedodontic practice in north Metropolitan Toronto. Opportunities available for partnership. Position available immediately. Applicant must be certified to practise in Ontario. Reply in strict confidence to CDA Box Number 1912.

ONTARIO — Northwestern. The town of Ear Falls requires a dentist for its new, modern, air-conditioned, medical-dental centre. The dental clinc has two fully-equipped operatories with identical Pelton-Crane units, X-rays, etc. No capital outlaw required: rental for space and equipment minimal. As well, the $18,000 underserviced area grant is available. For futher information please contact: Mr. V Aultman, Clerk-Administrator, Township of Ear Falls, Ont. P0V 1T0.

NOVA SCOTIA — Oxford. Dentist required for Medical Centre now under construction. Interested parties may contact: H.M. McCormack, Town Clerk, Town of Oxford, P.O. Box 338, Oxford, N.S. B0M 1P0.

MICHIGAN — Detroit. Children's Hospital of Michigan has announced the availability of residency positions in pedodontics, beginning July, 1980. The American Dental Association has granted preliminary provisional approval for this two year certificate program, which will prepare the resident for certification by the American Board of Pedodontics. Two residents will be selected each year. The program offers a stipend of $13,000 for the first year and $15,000 for the second year; health and malpractice insurance coverage; and two weeks of annual vacation. To obtain further program information and an application, contact: Dr. James Delaney, Dental Director, Children's Hospital of Michigan, 3901 Beaubien Blvd., Detroit, MI 48201, U.S.A.

TAX SHELTER (MURB) — Metro Toronto. Condominium townhouses, semi, 3-5% cash, class 32 CCA 10%, rental and cash flow guarantee, soft costs available. A World Realty Corporation, 276 Jane St., Toronto, Ont. M6S 3Z3. Phone: (416) 766-6700, 762-3366 or 245-5544. Pager 9999.

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The Faculty of Dentistry at the University of Alberta invites applications for the following full-time faculty positions: Chairman of Oral and Maxillofacial Surgery and Hospital Dentistry (Oral Surgery position in Faculty of Dentistry and Hospital Dentistry position in University of Alberta Hospital); Chairman of Graduate Studies and Research; Chairman of Restorative Dentistry (including fixed prosthodontics, operative dentistry, removable prosthodontics biomaterials, and endodontics); Chairman of Stomatology which includes Diagnosis and Oral Radiology, Orthodontics, Pedodontics, Periodontics and Oral Surgery; Chairman of Fixed Prosthodontics; Chairman of or staff position in Orthodontics; and staff position in Biomaterials.

The undergraduate class sizes are 50 in dentistry and 40 in dental hygiene. Rank and salary are commensurate with education and experience. Intramural private-practice facilities and staff are available. Clinical applicants should be eligible for licensure in the Province. The University of Alberta is an equal-opportunity employer.

All inquiries and curricula vitae should be forwarded within one month to Dean G.W. Thompson, Faculty of Dentistry, The University of Alberta, Edmonton, Alberta, Canada, T6G 2N8.

Opportunities Wanted

BRITISH COLUMBIA — Dentist with four years' experience in private practice, seeks associateship or purchase of a practice in the Vancouver area. Please reply to CDA Box number 1951.

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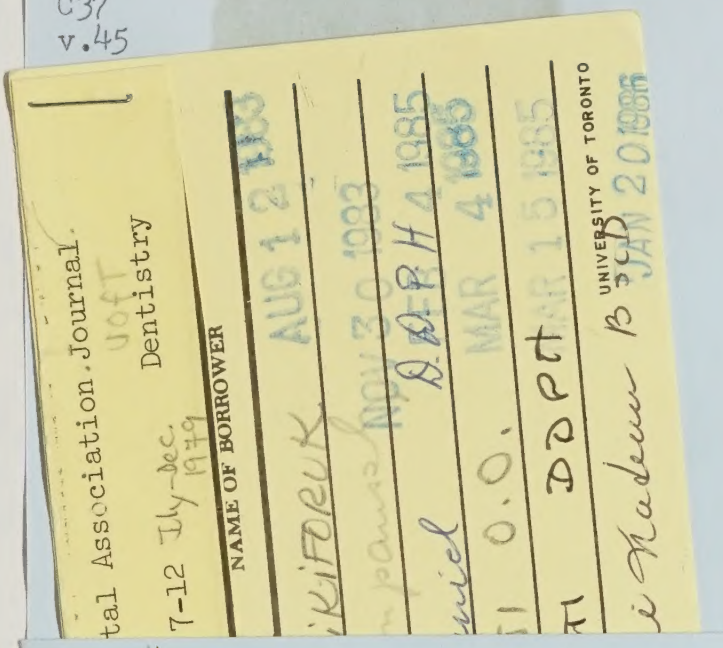

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